The American Bee Journal

DEVOTED EXCLUSIVELY TO BEE CULTURE.

VOL. XIII. CHICAGO, ILLINOIS, MAY, 1877. No. 5.

Editor's Table.

☞ Several articles prepared for this issue are crowded out for want of room.

☞ In California the recent rains have added much to the honey crop as well as to the spirits of the bee-keepers.

☞ Charles Kellar, of Lake County, Ind., reports having safely wintered his 23 colonies, and has had no spring dwindling. He wintered out of doors and packed in straw.

☞ We have a large stock of catnip seed and have concluded to sell during May at 30c. per ounce, post paid, though it cost more than that at wholesale, besides expressage.

☞ The price of Bingham's Smoker being reduced since our cover was printed, it is therein quoted at $2.00. We shall sell it, as well as everything else, at manufacturer's prices.

☞ D. P. Hartford has sent us specimens of his honey boxes, which are so constructed that they can be put together without a nail by the ends being "chamfered" and grooved. They are very ingeniously constructed.

☞ Friend Kretchmer has sent us one of his feeders, and also a fumigator. The latter is to hold in the mouth and blow smoke into the hive. The former is a tin box with a little cap filled with holes, through which will ooze the food for the bees to take.

☞ M. E. Loehr sends us a specimen of Alsike seed, procured of "Novice," and thinks it "sorrel," and asks our opinion of it. It is native Alsike. The best Alsike seed is imported; it costs more but is worth all it costs. We took it to Briggs & Brothers seed house, and asked their opinion. They also pronounced it Alsike, and not sorrel.

☞ The Rockland Fruit Farm Annual is on our table. It contains a colored plate and much useful information. It is sent free to any one addressing J. E. Remsburg, Atchinson, Kansas.

☞ F. W. Chapman writes us that the bees in his locality wintered "as of yore." He has lost but two, and reports the best success he ever had in wintering. He adds: "It pays to take care of what you have; one of my neighbors lost 78 out of 80; another 21 out of 25, and several all." They were kept in the old style and unprotected.

☞ E. C. Jordan, (Va.,) has sent us a "Swarm Catcher," and remarks:

"I have used it since 1861, and could not be induced to give it up. It is used by putting it on a pole of suitable length, with sockets in the small end, which should have an iron ring to keep it from slipping out. It should be made of undressed boards."

We have added it to our museum, for the inspection of our visitors.

☞ The New Orleans *Picayune*, speaking of the impulse given to bee-keeping in Louisiana, says the use of the Extractor has enabled hundreds of barrels to be shipped from that State, North, yearly. The writer thinks honey enough could be made in Lousiana to sell for more in the markets of the world than the best sugar crop, and best cotton ever made in Louisiana sold for.

☞ S. Corneil, of Canada, has sent us a sample of a frame which has cast iron arms to keep them at regular distances at both top and bottom. He remarks:

"These frames are suspended on metal rabbets; the arms in the bottom being driven in close to the frame, while those in the top are not driven home by about ⅜ in. It occurred to me that this was the very frame one of your correspondents in the Feb. number of the JOURNAL wanted. You see there is no chance to glue these frames fast. I am not the patentee, nor do I use them, nor have I any interest in them whatever."

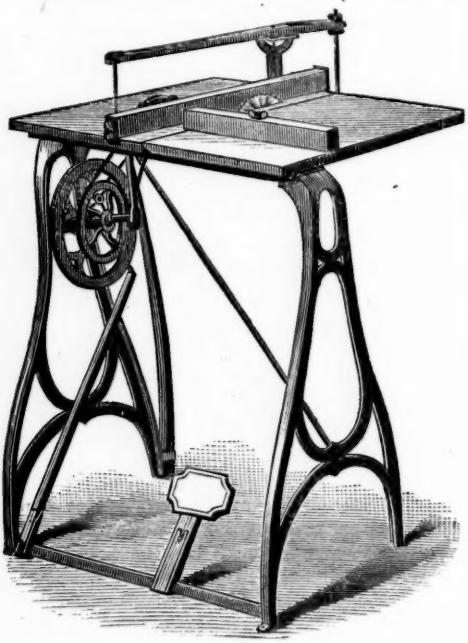
We thank friend Corneil for sending it; but we should hesitate to use such a frame. We think the "objections" outweigh the "advantages."

The Barnes Foot-Power Saw.

For the convenience of bee-keepers who visit this office (and they are not a few) we have induced Messrs. Barnes to send us one of their combined saws.

Those who call here will hereafter be able to "investigate" it to their hearts' content.

The following cut will give a good idea of the combined circular and scroll saw, as it stands in our office; the price of which is $40. This includes one rip and one cross-cut saw, 6 inches in diameter, and 12 assorted scroll-saw blades. Its weight is 160 lbs.



It is a beauty and works like a charm. Each machine is perfect, neither is subordinate to the other, though combined in one; doubling its value without detriment to its power or working qualities.

The six-inch diameter saws reach 2½ inches above the table. They can be used on the mandrels, set wabbling, to cut any desired width of groove.

The cut-off saw gauge is set by a thumb nut and radial slot to cut any desired angle, for frames, etc. The gauges can be removed instantly from the table and are always in perfect condition for their different purposes.

Emery wheels can be used readily on the mandrels whenever desired.

For making hives and boxes there can be nothing more convenient than Barnes' foot-power Saws. Any person who has one could not be induced to dispose of it. It will cut through one inch pine boards at the rate of 8 feet per minute, line measure, and will cut either thicker or thinner lumber.

The table is 28x28 inches, and stands 35 inches from the floor.

Steam power can be used on these machines at an extra cost of $10 for counter shaft and belt pulley.

From several letters from bee-keepers, etc., who have this saw, we glean the following:

San Buenaventura, Cal., Dec. 29, 1876.—"With my one-horse Barnes' Saw I am just shelling out the bee-hive stuff."
R. WILKIN.

Brumfield Station, Ky., April 9, 1877.—"I am well pleased with the way my Saw works. The cutter heads groove to perfection." O. BRUMFIELD.

City Bluff, Mo., July 23, 1876.—"The Combined Foot-Power Scroll and Circular Saw came in good condition. We were not long in setting it up and giving it a trial. We consider it the simplest and best constructed machine ever put before the people. It works like a charm and we recommend it to any one wanting a saw."
SCOTT & BRAMBLETT.

Modesto, Cal., Jan. 6, 1877.—"My cases for storing surplus honey are admired by all. I cut them out with my Barnes Foot-Power Saw." J. F. FLORY.

Winchester, Va., April 9, 1877.—"I think no one can be happier than I am, especially when ripping ⅞ in white pine with Barnes' saw.

"Two other bee men are only waiting to raise enough surplus funds to pay for one of Barnes' saws. They are each anxious to buy one. I would not sell mine for twice its cost. I do not want to be a day without one." O. M. BROWN.

Wyandotte, Kansas, Feb. 26, 1877.—"I make all my hives for 75 stands of bees with one hand and the help of your Power Saw, including frames and section boxes, and feel perfectly able to do the work for 150 stands." W. P. HOGARTY.

"This machine is one of the brightest illustrations of genuine Yankee ingenuity that it has ever been our fortune to meet, and the simplicity and fewness of its parts are really surprising. With the new and novel foot-power, the only wheel about the machine, except the saw, can be instantly set humming like a top, and one of the prettiest little saws can be attached to it in a little more than a second of time, yet the whole is so extremely simple that even a child can do nice, true work at once. At our first attempt we sawed one foot of ⅞ in. pine in six seconds." A. I. ROOT.

We supply it at manufacturer's prices, and advise all who need such an article, to procure it.

Notes and Queries.

Owen Co., Ky., March 17, 1877.—"I am at a loss to know how to make surplus honey-boxes and section frames. I hope to get the desired information in the A. B. J. We are in 38 north latitude and are now having cold rains. March, so far, has been a cold month here. I have lost some weak stocks but most of the bees are in good condition. After a few days of fine weather the elm will be in full bloom." G. W. JENKINS.

[On page 122, may be found a description of sectional boxes, which will perhaps be of value to you. In Cook's Manual for the Apiary, page 44 and 45 you will find a full description of how to make frames and boxes.—ED.]

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1. On measuring my Langstroth hives I find them only 14 in. wide and containing 10 frames, which instead of 1⅖ in. to the frame gives but 1 2-5, and as the bees often build a part of the comb straight and then mix it all up, would it not be better to put only 9 frames in each hive?

2. I wish to prevent "in-and-in breeding." Can I successfully do so by sending for a dozen queens, and on their arrival take about 3 combs with adhering bees from each of three hives and place them in an empty hive and introduce a queen immediately, without keeping her confined in a cage?

3. Would it be necessary to place the new hive in place of one of the aforesaid hives?

H. B. ROLFE.

[Fourteen inches for 10 frames are sufficient for the bees. If some bee-keepers give more space, it is for their own facility; for the combs can be more easily extracted from the hive when they are wider apart. But bees will build the combs truer in the frames only 1⅗.

2. Yes! By buying a dozen queens you can prevent "in-and-in breeding;" especially if you buy them from different breeders. But we would not recommend the plan of introducing that you describe, and were we to try it, we would not put the new hives in place of the old ones; for the old bees would be apt to kill the queens.—CH. DADANT.]

Juniata Co., Pa., April 20, 1877.—"Apiarists in this locality have suffered greatly from the severity of the winter. Nearly one-half the bees are dead and others greatly reduced. Many perished during the excessive cold in March. My loss has been very light. Wintered out-doors, having my bees protected from the north-west winds by a high board fence. I use mostly the Farmer's Hive, with double walls and an absorbing mat on top. I have 30 colonies, nearly all in very fine condition.

"A Question.—How can we best prevent extracted honey from souring in the warm weather? I had trouble with mine last season, although carefully put up in Muth's honey jars.

"I find my interest in the JOURNAL constantly growing—could not do without it. I heartily recommend it to all bee-keepers."

J. E. KEARNS.

[Those who have experimented with remedies for "souring," will confer a favor to the bee-keeping fraternity by giving the results of their experiments in the AMERICAN BEE JOURNAL.—ED.]

Benton Harbor, Mich., April 14, 1877.—"I put 10 colonies of bees into the cellar on Dec. 1st; after snow came, and we had a few cold nights. On April 1st I took them out; one was weak and another dead. The 8 are in good order. I have fed them syrup made from A sugar; also about 2 lbs. of rye meal per day. Is there any danger in feeding too much meal? One of my neighbors put 100 colonies into winter quarters in good order; some in the cellar, some in boxes packed with straw around the hive, and some of them were covered with stalks in his barn. All that he can count on now is 29 swarms; the rest have gone the way of all the earth. Can some of your correspondents tell us what was the matter. The combs were bright, with plenty of honey. He is an old bee-keeper and has always had good success before. He thinks that he let them stand until too late before he put them into winter quarters. Do you think that the cause of the loss?"

O. E. MEAD.

[We cannot guess the cause of the loss without knowing the circumstances of this unlucky wintering. Your neighbor is probably right, especially if he put his bees in their winter quarters after a spell of very cold weather, and when their abdomen was already distended with fæces.—CH. DADANT.]

Crawford Co., Mo., March 19, 1877.—"I have never seen in bee publications what the effects of sugar maple water has on bees. My bees have plenty of honey, but they work strongly on sugar water. Please let us know, in the JOURNAL, whether it is good for them. Another question I would ask: Will bees do as well with frames hung crosswise to the flyhole as lengthwise?"

JOB HARMAN, SR.

[Sugar maple water is very good for bees. They will increase in brood very fast with it.

Combs hanging crosswise with the front board of the hive are called cold combs. If hung lengthwise we call them warm combs. Americans prefer the cold combs, while the Germans and Italians, having side-opening hives, use warm combs. I am nearly sure that queens will lay more in cold than in warm combs, especially during the summer months.—CH. DADANT.]

Perry Co., Ill., April 9, 1877.—"I have 10 colonies, some in box hives. I wish to transfer them and would like to know how to do it. Also please tell me how to make bees raise queens when their queen is lost."

JOSEPH BROWN.

[Transferring can be done at any time but it is best when there is but little honey in the hives, early in the spring. On a warm day, after the bees are at work, blow some smoke in the entrance and take the hive a short distance away and turn it bottom upwards. Place the new hive over it and wind a sheet about the hives where they come together, so that the bees cannot get out. Put a box on the old stand for the returning bees to cluster in. Rap on the lower hive 15 or 20 minutes, and the bees will fill themselves with honey and go up into the new hive with the queen. Take the new hive down; knock the box hive apart, cut out the worker comb and fit to the frames (be careful not to damage the comb, and also to save all the brood); fasten the combs into the frame by tieing it, or putting a few wires accross it. Set the frames in the new hive and proceed with the rest, till all the worker comb is in. Raise the front of the hive and get the cluster in the box which was put on the old stand; shake them down in front of the hive. When the bees are all in, set the hive on the old stand. In about 3 days the bees will have fastened the combs; then the strings and wires may be removed; the colony being then in good order.

If a colony is queenless the bees will start queen cells, if they have anything to do it with. To give them a good queen cell from another colony is the easiest and quickest way of providing them a queen.—ED.]

Decatur Co., Tenn., April 1, 1877.—"I commenced a few years ago with 4 box-hives; I now have 40 colonies in the American and Thomas hives. I have tried to learn something of the bee as my stock increased. I have Root's honey extractor; it is exactly what it claims to be. My bees pay me over 200 per cent. We had too much rain last season, for much surplus honey. I never expect to be without bees and THE AMERICAN BEE JOURNAL. It should be in the hands of every apiarist. I am wintering on the summer stand, and shall, I think, not loose one-tenth of my bees. I expect to move some of my bees to Illinois soon. I want a little more information on nucleus swarming. I expect to Italianize my whole stock next summer.—What will give me the desired information?"

O. P. STORM.

[Get "Cook's Manual of the Apiary," and study it on these subjects, and with your determination you must succeed.—ED.]

"EDITOR A. B. J.—Having received one of the smokers, sent as a premium by the *Magazine* folks, with that paper, and dubbed the "Quinby Bellows-Smoker, latest style"—I desire to give my opinion of it. It is so badly made and of such poor material that it is entirely worthless. Mine is a regular fraud. I say this only in justice to my brother bee-keepers. Is it right to send out such an article, and call it a Quinby smoker of the latest style? I call it *deception!* What do you call it?" R. P. G.

[Friend G. that is a *hard* question. We don't like to pass judgment upon the motive. You paid only $1.60 for it and the *Magazine*, and as the price of the *Magazine* is $1.50, call the cost of the smoker to you 10 cents, and it isn't so bad, in your case.—ED.]

☞ Since writing the above, one of these smokers has been put on our table to examine and give our opinion of. It came *via* "Novice" from L. C. Root. It is very poorly constructed, and the leather of which the bellows is made would not stand an hour's use. We only speak of the one before us, and hope that others are much better than this one.—ED.

EDITOR A. B. J.—In looking over the "Official List of Awards of the Centennial Exhibition," I find only one award for American Extractors. Will you please inform the readers of the JOURNAL how it comes that several claim to have diplomas for Extractors in the A. B. J.? M. D. T.

[We have examined the "Official List of Awards," and find Murphy's on page 73. It is a big job to look over so many names, and we shall ask friend Chapman to give us a copy of the official notice of the premium being awarded, or refer us to the page in the "official list" where it can be found.—ED.]

☞ A. G. Hill, of Kendallville, Ind., is issuing a monthly sheet called *The Bee-Keeper's Guide*, which he sends free to all his customers.

☞ J. S. Coe inquired in the JOURNAL—"Who made the first curved-bladed or round-pointed honey knife." F. W. Chapman claims to have done so, in 1870. He says: "I made the first one I ever saw or heard of." It is a nice knife and is well finished, and is kept for sale at this office.

☞ We have had so many "calls" this month that it would make a long chapter to report them. Since we have gathered up our "museum" of articles used in the apiary for the instruction and amusement of visitors, we find them increasing in numbers. All are welcome.

Our Letter Box.

Fulton Co., Ky., April 6, 1877.—"My 15 colonies wintered well. I lost 3, the honey being stolen from them." G. ILISCH.

Woodville, Miss., April 6, 1877.—"Honey is coming in faster than I ever knew it at this season of the year before, but many of the colonies are weak."
ANNA SAUNDERS.

Whitesides Co., Ill., April 6, 1877.—"I wintered 83 colonies including some light stocks; 3 starved, one left on summer stand died, another died, cause unknown, and 3 were queenless." R. R. MURPHY.

Ripon, Wis., April 5, 1877.—"Spring is cold and late; bees are all in winter quarters; this is the latest that they have been kept back with me for 20 years. I am wintering 110 swarms; I cannot tell what their condition is yet. The last season was very poor. I have always taken the JOURNAL, am very glad to see the improvement you make from month to month." R. DART.

Hartford, Wis., March 24, 1877.—"We have wintered 734 colonies. They are in six different places. We hire a girl to take care of them in each place, and have other help to use in either as needed. We could not get along with any of the extractors advertised; they are too slow for us. We made one to hold 10 frames, to extract 300 lbs. per hour, and three others holding 8 frames each. We make everything we use in the bee business, except the tin work and barrels. Last season was a poor one; we got 8,000 lbs. of extracted and 1,000 lbs. of box honey. This is not a good place for box honey, as the nights are too cold, driving the bees out of the boxes, and they are slow about returning. We winter in two cellars and four bee houses built on the ground with walls 16 in. thick, filled with sawdust or fine coal." CROWFOOT BROS.

Wellsville, Mo., April 2, 1877.—"In the March number of the JOURNAL there is a cut of a hive by Mr. Bull, called the "*Ne Plus Ultra*," and claiming, as the name implies, nothing more beyond—a perfect hive. In the fall of 1867 I bought an individual right of the Langstroth hive of R. K. Otis, now deceased. I paid $8.00 for it. Previous to this I was well acquainted with it, knew the exact size of hive, frames, etc. Had read in the JOURNAL discussions on its merits, particular on its shallowness as being a detriment to successful wintering, particularly in the North. When I commenced making new hives I concluded to change the proportion and adapt it to a colder climate. I was then living in Northern Illinois, latitude 42 deg. I accordingly shortened the hive 2 in., made it 2 in. deeper and one frame less, and it has been a very good hive with me; but I never dreamed I was using the *Ne Plus Ultra* hive till I saw the cut in the March number. My hive and the *Ne Plus Ultra* differs only in two things: My frames are just ⅝ in. shorter, and I don't use nails in the upper corners of the frames for them to hang by. I much prefer a frame to hang on its own top bar. The loose bottom is a nuisance in handling. Now, it may be a good plan for every man to give his own hive a name, but I much prefer to give "Honor to whom honor is due," and I claim all hives with movable frames are Langstroth's, whether they have the exact proportions of his or not." JOHN BARFOOT.

Crystal Springs, Miss., Apl. 2, 1877.—"On March 23rd, I had a fine swarm of bees; others on the 25th and 26th. They are getting out early. We have a prospect now for a good crop of fruit." J. W. MCNEIL.

Montgomery Co., Ind., April 4, 1877.—"I have had a "Bull's run defeat," in wintering bees. I put them in a cellar that I wintered bees two seasons before with success, but the winter just passed has from some cause almost destroyed my apiary. I have about 20 very weak colonies, and am caring for them as best I can. If there had been a flow of honey last September or the first part of October, I am satisfied my bees would have wintered better; there was considerable uncapped honey when I put the bees in the cellar. Some had dysentery, others died without soiling the combs. I think I injured my bees by extracting too closely in the first part of the season. Bees kept in the ordinary way suffered much. I put 48 colonies in cellar, a number of them were small, but suffered no more than stronger ones. The temperature ranged from 32 to 40 deg." ISAAC SHARP.

[It is evident that the bees died for want of sufficient wholesome food. You extracted too closely, and what they gathered after was uncapped, and probably very poor honey. Hence the mortality.—ED.]

Lawrence Co., Ind., April 2, 1877.—"I am a dear lover of nature and its products, especially the bee. I have 13 colonies in good condition. They have wintered well. They are of a mixed variety, black, hybrid, and Italian. I think the hybrids superior to either the full black or Italian. They are carrying in pollen from the maple and elm. I gave them flour but they soon left it and went for the natural pollen. I have kept bees for 15 or 20 years, and would not do without them, even for pleasure, if there was no profit. This is not a very good bee country, but what honey we get is of the best quality. It is mostly from poplar and white clover. I get from 50 to 100 lbs. of box honey from good hives in good seasons. Last season was one of the best for several years. I propose to sell a part of mine, as I have no time to attend to them all. I am a close reader of the AMERICAN BEE JOURNAL, and consider it the best bee paper of the day, and no bee-keeper should be without it." G. W. DODSON.

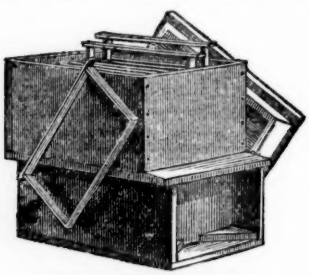
Atchison Co., Kansas, April 4, 1877.—"My curiosity is considerably excited by the article on page 134, by Jewell Davis: 'How to Italianize Blacks,' etc. I want to know all about 'that nursery,' as I want to use it myself. Four years since I went into my garden to hoe cabbages, and found a good swarm of black bees on a small, dwarf pear tree. I fixed up a small box, I had at hand, and put them in. I now have 10 colonies, all in fair condition; four hives very strong. Two of them are Italianized: have them all in movable-frame hives. Although 61 years

old, I am as much interested as ever. I have owned and handled bees at different times more than 30 years. The best Italians I have seen came from H. Alley. I say this in justice to him, as I see some one is 'kind o'pitching into him.' That is my experience. Just please tell us all about that nursery." H. S. HEATH.

[It seems to us that Mr. Davis has made the matter plain. If there is any particular point upon which you wish information, the better plan will be to write to Dr. Jewell Davis, Charleston, Ill, and he will no doubt supply it.—ED.]

Schoharie Co., N. Y., March 5, 1877.—"I should like to see a description of the Langstroth hive, with the dimensions of hive, frames, etc. Do they winter well? Will bees winter as well in a frame 14 in. long as in one 18 in. long, the amount of comb being equal in each hive? It is a great advantage for me to use the frame 19½ in. long, if it will winter as well, but my loss has been greater since using the short frame with 10 in a hive, than when I used the long frame with 8 in a hive."
N. D. WEST.

[The dimensions of the standard improved Langstroth hive is as follows: The body of the hive is made of inch boards, and should be dressed on both sides; and is 13x18¼ in. inside, 10 in. deep; ⅜ in. being taken off one end for entrance; portico in



LANGSTROTH HIVE.

front, 4 in. The bottom is nailed on to the sides; a 1-in. strip nailed on to the body, 1 in. from top around the hive, to support the second story or cap; cap is 7 in. deep, and the second story is 10 inches deep.

The top bar of frame can be made of ¾ in. stuff, and beveled ½ in., furnishing the comb guide; whole length 19⅛x⅞ in.; end pieces 8⅝x⅜ in.; bottom pieces 17⅜x¾ in.

As to wintering—the fall management has more to do with it than the style of hive used. If they have sufficient *good* honey, and are protected on the summer stands, or placed in a good and dry winter repository, with the temperature kept at about 45 deg., it is safe to expect them to winter well.—ED.]

Starkville, N. Y., April 7, 1877.—"I notice in the report of the N. E. B. K. Association that I am reported as saying: 'It is stated in the bee books that bees begin to labor at two weeks of age;....he thought much younger.' What I really said was that it is stated in the bee books that bees begin to labor in the field at from 2 to 3 weeks of age. While taking no exception to this as a rule, I further stated that they *sometimes* begin their field work much younger. The error is too great to allow it to stand uncorrected." P. H. ELWOOD.

Winnebago Co., Ill., April 2, 1877.—"My bees increased to 200 colonies last summer, and gave 6,000 lbs. of honey. I put them into winter quarters on Dec. 12th, and took them out Feb. 28th. I lost 3; the rest are all right." H. W. LEE.

Lee Co., Iowa, Apl. 4, 1877.—"Last spring I had no bees. I had some Langstroth hives in the yard and a couple of swarms came and took possession of them. One was black, the other an Italian swarm. I have now 5 swarms. None of my neighbors keep bees. I intend to Italianize them."
HENRY J. ALVIS.

[It was really good of you to place those hives out, where these poor fugitives may find rest and make themselves at home. When they lay up good "stores," and you go around to collect house-rent of them, then you will probably find that they pay more rental according to cost of the building than any other tenants you have.—ED.]

Georgiana, Ont., March 15, 1877.—"During the winter of 1873 one of my congregation gave me a hive of Italian bees, placing it for me in a nice dry and warm part of the cellar; it came through the winter in good condition, while my kind friend had the misfortune to loose all he had. Hence, I resolved to assist him in return, after I had gotten a fair start. At the end of 2 years, when I had increased to 6, I gave him the same hive back again, but he lost it through spring dwindling and by taking it some 50 miles distant. During the summer of 1875 I succeeded in trebling my stocks and obtained 3 cwt. of extracted honey. But, like many other young bee-keepers, I was over-anxious in obtaining large results, and extracted once too often to my sorrow, for the honey season having suddenly closed, and cold weather setting in, which prevented feeding, I was obliged to go into winter quarters with most of my hives badly provisioned with unsealed honey, which produced dysentery. So that out of 11 I came down to 4, which was rather discouraging, but knowing what was the cause of my loss I willingly proceeded with the determination to guard against such a mistake in future. Consequently from the 4 stocks with which I started last spring, I increased to 9, taking 2 cwt. of honey; the 9 are at present in good condition with the prospect of coming out all right in the spring. Gave them a cleansing flight on that beautiful warm day here on the 1st of March, and now I will not disturb them again till the 1st of May, when all chance of spring dwindling will be past, if the weather be favorable. I use a hive and extractor gotten up by Mr. D. A. Jones, of Beeton, Ont., I think our greatest Canadian bee-keeper, and to whose kindness and willingness to

tell all that he knows, I am indebted to a great extent for the interest which I now feel in this pleasurable and profitable pursuit. I think bee-keeping is the most interesting and recreative of all secular employment for a clergyman, and it is perhaps owing to the fact that the greatest discoveries and inventions in this art have been made chiefly by clergymen. I read all the journals and everything that I can find on bee-keeping with pleasure, and anxiously desire to do all that I can to promote this useful art in this great Canada of ours."

D. P. NIVEN.

Warren Co., Ill., March 19, 1877.—"I hear of some losses through this county, but not by practical bee men. I had 80 colonies here at my home put in the cellar on Dec. 16th, full of ice. On Jan. 27 it turned warm and continued so till Feb. 28; since then cold weather has prevailed. The temperature in the cellar ran to 48 deg., and has thus continued. The bees are humming, and carrying out the dead, and appear to be in good condition. At the river I have 40; Mr. Hollingsworth, 100; and Dr. D. G. Campbell 40, all in one cave dug in the sand. A month ago they were doing finely. In another cave adjoining ours, Mr. N. L. Jarvis has over 100 colonies stored. I am glad to see the constant improvement you are making in the JOURNAL, and hope for its continued prosperity."

T. G. MCGAW.

Perry Co., Ill.—"I commenced last year with 6 colonies; I now have 10. I wintered on the summer stands, unprotectected from the north and west winds. There are a great many dead bees. I read Prof. Cook's essay before the Mich. B. K. Association, and should be glad to have him give, through the JOURNAL, his method of queen raising. Also, I would ask H. Alley to give his mode of drumming out a queen. Also, I would like C. F. Muth to give his method of management on the roofs in the city."

JOSEPH BROWN.

Cuyahoga Co., O., March 24, 1877.—"To all appearances, bees are wintering well. I have 25 colonies in the cellar and 5 on their summer stands, boxed and packed in chaff. I think those outside are doing fully as well as those in the cellar. I am a novice in the bee business. I commenced the season of 1876 with 15 very weak colonies; increased to 30 by artificial swarming, raising my own queens snd some for my neighbors. I took only about 600 lbs. of surplus, which I sold at 20c. to 25c. per lb. I use the Langstroth hive and Isham's honey boxes, which have given entire satisfaction. The winter has been a hard one here, and I hear of many losses in wintering in this vicinity. I tried the foundation in a small way, but it was a failure; possibly owing to its being the bleached wax—am open to conviction, however. The wax introducing cage, invented I think, by S. K. Marsh, is a success, with which I have never failed. Whether the great problem of successful wintering shall be solved or not, it is evident there is no lack of theory in the matter, but the 'chaff' will be winnowed in time and results established that will secure a more uniform success. We have a good deal to learn yet and though progress is slow it is none the less sure, and bee-keeping will rank among other branches of industry, subject to the same laws of demand and supply, stimulated by the one and depressed by the other. Very few indeed are likely to make a fortune at it, even the most successful, if we may judge from the reports of Harbison and others. Still it makes a reasonable compensation, and as a recreation has attractions only known to those who have tried it."

C. S. B.

Adelphi, Iowa, April 13, 1877.—"I came through the winter with 68 colonies in Finn hives; lost none by freezing, but have lost some since by robbing, while I was away from home. Have heard so much of comb foundation that I have bought a pair of Finn's plates. I expect to give my bees all the advantages in my reach."

J. J. KISER.

Mower Co., Minn., April 12, 1877.—"On Nov. 10th I buried 62 swarms, and on April 9th set out 59 in excellent condition—having lost 3. Their loss was due to the fact of their having been buried in three pits, and one hive in each pit stood directly under the chimney or ventilator, and all the moisture that collected in the chimney fell directly upon this one, and of course it could not stand a continual bath and died a martyr to neglect. If I could have had time to personally superintend the placing of each hive, the result would have been different. I remove the covers in wintering. I have buried my bees 11 years in succession and have never lost any (that were in proper condition for wintering) when I have in person placed them in the pit. The advantage gained by this method is that the bees are left perfectly quiet until taken out, and the temperature is very even, the thermometer standing at about 45 deg. all winter."

I. INGMUNDSON.

Macomb Co., Mich., April 17, 1877.—"Out of 54 colonies I have lost 26, and have several more in a poor condition. I think that my bees gathered largely from apple pumice from a cider mill near by; they did not die from an insufficient supply of honey. A neighbor, living about 4 miles from me, keeps his bees in a common box hive, and has lost 22 out of 29 colonies. He says that he will adopt the movable-frame hive. The loss of bees is very great through this section of Michigan, a large percentage more in common than movable frame hives."

WM. P. EVRITT.

Des Moines, Iowa, April 16, 1877.—"I have had from 20 to 30 swarms of bees for 3 years, in this city. Last year I sold down to 15; increased to 28; sold $212.00 worth of honey in small frames. I have used 12 of Finn's double-walled hives for 3 years. I winter on summer stands, and have never failed to come out strong in spring. Two swarms have been in the Finn hive for two years, without having a comb moved; one of them cast a swarm last summer, it filled its hive and stored 60 lbs. of honey in three weeks. I have purchased more bees this spring, and shall put them all in Finn hives as soon as possible; having used it for five years I believe it to be the best. With this hive and THE AMERICAN BEE JOURNAL, no one need fail of having bees and honey."

MRS. A. BRACKETT.

Harrison Co., Ind., April 15, 1877.—"Bees are working on yellow willow and hard maple. Everything looks favorable for a good honey harvest." DAVID GRABBLE.

Fayette Co., Ind., April 15, 1877.—"I wintered 42 colonies in a house with a 6-inch wall filled in with sawdust, and lost one. I had 8 on their summer stands, packed in corn fodder and lost 2. Those in the house did the best." DANIEL WURTH.

Ingham Co., Mich., April 20, 1877.—"I have wintered 65 colonies, and they are all in fine condition. Last season I wintered 64 colonies, and for 2 years have not lost a single colony, and have but little spring dwindling." JAMES HARPER.

Jefferson Co., Iowa, April 18, 1877.—"My bees have wintered well, and are now at work." ANDREW SIMONS.

Plumas Co., Cal., April 12, 1877.—"I wintered 30 colonies on summer stands; they are all right and have been working lively on willow and alder for the last month. I don't favor wintering under the snow; it is too damp. I have tried it." E. CULVER.

Vermont, Ill., April 19, 1877.—"I commenced last year with 19 colonies; increased to 56, bought 25, making me 81. I lost and sold 6, so that I have 75 to begin with this year. I got 2,456 lbs. of box honey." HARDIN HAINES.

Dearborn Co., Ind., April 10, 1877.—"My bees are all alive, and are gathering pollen nicely. I noticed several combs of brood and some drones in a hive in Feb. The hive had a fertile queen." S. HUMFIELD, Jr.

Pottawattamie Co., Kansas, April 8, 1877.—"My bees are gathering pollen. The peach blossoms are nearly ready to expand. I hope we shall have a good season, and that the 'hoppers' will not trouble us seriously this spring." JACOB EMMONS.

Crawford Co., Pa., April 6, 1877.—"I started last winter with 133 colonies; 103 wintered in-doors and the balance out, in large double hives, packed all around with buckwheat chaff and hay; chaff at the sides and hay on honey-board, with slots for surplus boxes all open. With four exceptions they wintered splendidly, very much better than those in the bee house. The bees smothered in the four, by the entrance becoming stopped up with snow. I was away from home a part of the time, and neglected them. The hives were 2 to 3 feet under the snow, part of the time. I shall hereafter winter out-of-doors altogether, as I have never wintered in-doors to suit me. With a few hives in a house they do well enough, but with a large number and the house closed up, so as to maintain a temperature of about 40 to 42 deg., the bees were out of the hives too much; the air is too close and impure, and in order to overcome this defect I have to open the ventilators so wide that the temperature sinks below freezing point; and in this condition, according to my experience, they are worse off than out-of-doors, without protection save that given by a single board hive." H. S. SEE.

Atchinson Co., Kan., April 20, 1877.—"My bees wintered well in the cellar. Peaches are in bloom now and honey gathering has commenced." F. SCHLETZBAUM.

Montcalm Co., Mich., April 19, 1877.—"I wintered 190 colonies in the cellar. They came out in good order." H. M. ROOP.

Blackhawk Co., Iowa, April 14, 1877.—"Bees wintered well here. I winter in the cellar under my kitchen, and ventilated through the stove pipe. I lost 4 out of 35 colonies; they were queenless, but had plenty of honey. The Italians are more active than blacks. I would not do without the JOURNAL if it cost $5 a year." L. L. TRIEM.

Butler Co., Pa., April 18, 1877.—"I put my bees into winter quarters on Nov. 25; took them out Feb. 7, returned them the 9th, and put them on their summer stands April 3rd. I lost but one out of 100 colonies. They are all Italians and in good condition. I wintered part in a cave and the balance in a bee-house; the walls filled in with 5 in. of clay. I used chaff boxes in place of honey-board. They are dark Italian bees, such as Ch. Dadant imports—none of the light-colored Italians for me. If a hive dwindles away in spring, it is one of those 'beautiful light ones.'" JACOB PATTERSON.

Iron Co., Mo., April 16, 1877.—"A lady got me to 'doctor' her bees, last week. They were in the 'Buckeye,' a hive that has an upright case; the frames being hinged on a carriage, the bottom of which is an extensive moth trap. One hive had not been opened for 2 years and the other was filled last year. The box room was scanty and inconvenient, while boxes had been put in, but in one hive they refused to work in them because they had no starters. The bees had made all fast in the case, both top and sides. A large knife had to be freely used before the carriage-bearing frames could be withdrawn. Both had plenty of moths and roaches, and from one I took a gallon of dead bees; yet the colonies were strong and stores abundant. The hive deserves an advertisement as a nuisance. Most of the bees hereabout died last winter; cause—worker comb filled with honey and breeding stopped. Some went in with 20 stocks, but came out with one. Nearly all in old box hives or gums, and left on the summer stands." WM. CAM.

De Vall's Bluff, Ark., April 16, 1877.—"Having sold some, I commence the present season with 54 colonies. Last season I commenced with 45, and secured over 5,000 lbs. of very choice comb honey, in sections, and had an increase of 50 per cent. in stocks. This season I expect to beat that." W. W. HIPOLITE, M.D.

St. Clair Co., Ill., April 21, 1877.—"Bees did moderately well, last year, but I lost most of them during the winter. On examination, I think it was dysentery, caused probably by the sour, uncapped honey, with which the combs were partially filled. Have just the number of colonies now that I started with last spring, but stronger ones. Want of proper attention the chief cause of loss. Generally, bees wintered well here." L. C. BORNMAN.

Correspondence.

For the American Bee Journal.

Corn Blossoms and Honey.

MR. EDITOR:—In the April number of your very valuable JOURNAL, W. B. Rush says "Corn gives much honey and plenty of the very best pollen." With the latter statement of this quotation I have no controversy. Corn tassels afford an abundance of pollen, and are doubtless of great benefit to bees in that respect; but friend Rush is certainly mistaken in regard to the yield of honey from that source. I have many a time watched the bees as they were working on the corn, and I could never see one pause for an instant and use its proboscis. I think if your correspondent will go into the corn fields, and observe closely, he will be convinced of his mistake. His bees have been gathering pollen from corn, and honey from something else. I should like to visit Mr. Rush when orange blossoms are plenty, and try some of his orange-blossom honey.

New Castle, Ind. M. MAHIN.

For the American Bee Journal.

How to Introduce Queens.

There seems to be many ways this may be done, if all is true we see in our bee papers. No doubt each one who succeeds, thinks his plan the best. This may be true in my own case; however, for fear I may be tedious, I will proceed to give my method, hoping that all who try it will report either to myself or through our much-esteemed AMERICAN BEE JOURNAL.

Take the queen desired to be introduced, cage her with a few young bees, a day or two old, taken from the hive into which you wish to introduce her, these give her the scent, by being in the cage with her, of this hive. Next take a frame of comb and bees from the same hive, containing hatching brood and young bees, place it in a hive a few yards away from the hive from which the frame was taken; suspend the cage containing the queen by this frame. In an hour or two nearly all, if not all, the old bees on this frame will leave and return to their old stand. The queen can then be cautiously released on this frame containing mostly young bees; watch them and see if they attack her, if not, let the hive containing her and one frame remain where they are until night. However, before night, go to your old stand—the one from which your frame was taken—hunt up the queen, cage or destroy her as you wish, take all the frames except one or two, brushing off the bees, and place them in the hive where your new queen is. At night put the hive containing the new queen on the old stand, removing the old hive containing the bees, away some ten yards.

Next day most, if not all, the old bees on going out will return to the old stand and enter, ladened, the hive containing the new queen. About 12 o'clock on that day go to your old hive, open the entire top, and if the bees do not in a half hour leave this hive and return to the old stand, take the remaining frames and hive and brush off all the bees in front of the stand or hive containing the new queen, they will enter and not disturb the new queen. Be certain and do not open the hive containing the new queen during that day. Take the frames left and put them in some other hive.

This plan consists first in giving the queen the scent of the hive into which you wish to introduce her, by caging young bees with her from that hive. Secondly, by releasing the queen among young bees which seem never to attack a queen. Thirdly, by causing the old bees, the day after, to enter, ladened, the hive where the new queen is, in which condition bees seem never to attack a queen. And lastly, by forcing the bees to enter the same hive in a queenless and completely demoralized condition, in which bees seem glad to find a queen. I have no controversy with others about their plans, mine has been successful in my own case. I am willing others shall have it.

J. W. MCNEIL.

Crystal Springs, Miss., March 14, 1877.

For the American Bee Journal.

American Institute and the National.

I am in receipt of a letter from Mr. J. S. Coe, in which he says: "After several interviews with the officers of the American Institute, I have received from them the following proposition: They agree to admit the American Bee-Keepers' Association including all its members, as one individual, for the purpose of exhibiting their products and implements, and to allow table space up to 100 feet in length and also space for the exhibition of hives, extractors, etc.; to allow each individual member of the association or their agents to sell and deliver their products and implements, or sell by sample and take orders.

"They agree to issue to each regularly-appointed delegate three free admission tickets to the number of two hundred delegates, and probably up to five hundred. For this space and these privileges the fee will be $7.00, and they give me to understand that if we make a permanent arrangement with them they will remit this fee and deal liberally with us in every way."

I fully agree with Mr. Coe, when further in his letter he says: "It seems to me that this is a golden opportunity for bringing our Society into public notice and favor and to establish it as a permanent institution."

Brother bee-keepers let us hear from you on the subject. Shall brother Coe effect the arrangement? How many of you will be on hand with samples of your honey, hives, extractors and other implements of the apiary? I hope there will be a good attendance and a fair display, one that will reflect credit upon our pursuit and be an honor to American apiarists. Let me urge, too, upon all bee-keepers to assemble in their counties and organize county societies and elect a delegate to the next meeting of the National Society; this delegate can act as your agent also in seeing that any article you may send is properly displayed.

Mr. Coe further writes: "We have to the middle of June to decide the matter." I therefore urgently appeal to all bee-keepers to give an expression in the June number of the Bee papers, or address Brother Coe or myself on the subject.

WM. J. ANDREWS,
Pres. National B. K. Assn.

For the American Bee Journal.

The Price of Queens and Colonies.

Can a bee-keeper get a living by producing good, unwarranted queens for one dollar? No! and I will prove it. A good hand in the bee-keeping business cannot, without help, raise in the four summer months (June to Sept.) more than 500 desirable queens; *i. e.*, raised in good colonies, for the first part of their growth at least. It is now certain that queens nursed in poor colonies, or during time of scarcity, are generally of little value.

These 500 queens are sold nominally for $500. From this deduct the expenses of advertising, stamps, cages, mailing, etc.—about $100—leaving $400. But these $400 are not *net* profit; for to raise 500 queens we destroy at least 50 good colonies. If we count these at only $4 each, we have $200 more to deduct, besides the cost of honey or sugar to feed them; which still decreases the $200 remaining.

Had we put all our energies to produce honey, our 50 colonies would each have given at least 20 lbs. of honey and 25 good swarms; the whole worth about $200. We would have had (besides plenty of time to do some other business, or to work 250 colonies more) a net profit of at least $600.

Then the "dollar queen" business was a poor idea. Its inventor and propagator was not long in finding that his employees would give better results by working at anything else, and he has left the dollar business to others, after a short trial.

In Italy, wages are very much lower than in this country; you can hire a good, intelligent young man, over 20 years of age, for $60 per annum, board included, in the large cities; you can hire the same in the country for less than 20 cents a day, without board; yet you cannot buy queens for $1. In spring and summer they are worth from $1.20 to $2. It is only in Sept. that you can buy cheap queens, when the peasants brimstone their bees.

It is the same in Germany, where hybrid queens are sold for more than $1.20 each, and in that country, also, labor is cheaper than in America.

Are these dollar queens profitable to the buyers? No! Cheap product is very often dear. No doubt some have been satisfied with them; but I have received a number of letters showing that even for nothing these queens would have proved *too dear*. One of my neighbors has introduced 20 such queens in his apiary of 120 black colonies and now he cannot see in which colonies they were introduced, only two of his colonies having been hybridized by this introduction.

I do not expose these dollar queens for business sake. We have resolved not to sell a home-bred queen this season; we have about 100 colonies to Italianize for a neighbor, and it is enough to use what we will raise, after replacing the hybrid queens of some of our apiaries.

The price of colonies this spring is also greatly reduced. Such a low price cannot be maintained without loss. A good colony of black bees, in a box hive, can be sold from $3 to $5. The value of such a colony, in Sept., would be as follows: Hive, 50c.; 2 lbs. of wax, 55c.; 25 lbs. of honey at 8c., $2; black queen and bees, $2; total value of the colony, $5.05.

If the owner of these bees cannot sell them in spring for more than $3, his queen and bees are sold for nothing; and he is not paid for his trouble, expense and risk of wintering. Had he killed his bees in the fall, to take the contents of his hives, he would have avoided all the trouble and risks of wintering, and obtained just as much money. Many bee-keepers kill their bees every fall. The price of bees in box hives is not their true value and should be increased.

It is the same with Italian bees in movable-comb hives. Combs and honey in movable frames are worth more, because the combs can be kept, and extracted honey is worth more than strained. In Sept. a good colony of Italian bees in a carefully-made and painted movable-frame hive, should be estimated thus: Hive, $2; 8 Quinby or 10 Langstroth combs, $2; 25 lbs. of honey at 12c., $3; value without bees, $7. We can realize this amount by killing our bees, selling the honey and keeping the combs for the following year.

But we winter our bees till spring, to sell to our patrons. The cost of wintering cannot be estimated at less than 20c.; chances of wintering, 30c.; cartage and guarantee of safe arrival, 50c.; advertising, circulars, stamps (these items with us amount to $150 a year), $1; total expenses, $2., to be added to the price. Then the hive, *without the bees* is worth $9 in April. By selling colonies at $10, tested queens and their bees are sold for $1; at $9 queens and bees are given away!

By brimstoning our bees we could have pocketed our profit in the fall without risks or trouble. By selling colonies, we have to replace the hives by new ones, and swarms put into empty hives will bring far less profit than if hived with combs. A good swarm put in a hive with comb, will sometimes give as much as 50 lbs. of surplus honey, and remain strong for winter. If we killed our bees we should avoid the labor of answering from 20 to 50 letters of inquiries every week.

Notwithstanding, at $10 per hive, our tested queens and bees are sold for only $1, should we send a colony whose queen was replaced by her bees, without our knowledge, or whose workers or queen are not in accordance with the fancy of the purchaser; or if the colony is a little below the average strength, we are unhesitatingly called "humbugs;" not privately, but in full meetings of bee-keepers, as we were last year!

Let us all then direct our energies to producing honey, reducing our swarms to the smallest possible number; for should we continue as we have done so far, we shall be compelled to brimstone our bees.

Some object that honey is a drug on the market. No! Honey is becoming a staple article, for all the honey produced is eaten every year. Honey will give profit at 10c. per lb.

Our honey sales never brought us abuse; and during 10 years of business in selling queens and bees, we have received many praises, but we have also been greeted with accusation enough to make the business very irksome, without a compensating benefit. The bee-breeder who has never been accused of misdealing, is one who has never sold a bee. CH. DADANT.

Hamilton, Ill., April 10, 1877.

For the American Bee Journal.

How my Bees Wintered.

Last fall I had 51 colonies of pure Italian bees. I cut holes through the combs of nearly all, for winter passages, packed the caps full of hay and left them on their summer stands. Owing to the scarcity of honey in the fall, and my not having time to give them the attention they ought to have had, some of them were deficient in stores, more so than I supposed. Some of them were also deficient in bees. Now for the result. Nine either starved to death before I was aware that they were in danger, or perished because there were not bees enough to maintain the necessary heat; and three, with plenty of bees and honey, died of dysentery. I am inclined to the opinion that these died of too much pollen. The combs in which the bees clustered contained a great deal of it, much of it being left in the bottoms of the cells after the honey had been eaten out. The bees were full of pollen.

I have observed that bees that are fed late in the fall, but not too late for the food to cap over, whether fed with syrup or honey, invariably winter better than others. And the reason I believe to be that there is little or no pollen within reach of the bees. Last summer I had a colony that became queenless, and no young bees were raised after August. They were also destitute of sufficient stores for winter, although there were plenty of bees. I gave them a queen in October, and having some very thin extracted honey which was almost sour, I fed it to them, thinking that they would raise young bees enough to live through the winter, but though the honey was stored away and properly sealed, the queen laid no eggs. I expected to loose them, but have been happily disappointed. They have wintered well, began to breed early, and are now one of my best stocks. The bees were all old, and I attribute their longivity to the fact that the honey they had to winter on contained little or no bee-bread. If bees eat much bee-bread, they must either have opportunity to fly or they must perish.

I have now 39 stocks, all of them strong but one, and that, though rather weak, is building up nicely, and will be ready for business by the time white clover blooms. One of my strong stocks is queenless. I am building it up by giving it brood from such hives as can spare it. It will soon have a queen.

M. MAHIN.

New Castle, Ind., April 3, 1877.

For the American Bee Journal.

"Apiarian or Apiarist."

I see by the last BEE JOURNAL that the editor's *apiarianism* is not sound. He says *apiarian* is an adjective and not a noun; will he give us his reasons why it is not a noun. We have a deal of respect for Webster's Dictionary, but on apiarianism it will set us back to the time when every swarm of bees had a *king bee*. What are the words *amphidian*, and *sectarian*, nouns or adjectives? Do you think that *sectarist* and *amphidist* would be better? What makes a word right or proper? Is it not its use by reputable writers? of course you will admit that; then look at the authorities. Langstroth, Quinby, and Wagner, ought to be the authority that would settle the dispute on *apiarian* and *apiarist!* The fact is *apiarist* is a word that is hardly ever used by apiarians, unless it be some novice that has gone to a Dictionary, and launches forth with the word *apiarist*. Thinking that he has "made a grand discovery by which he shall be known to all posterity." Now, Mr. Editor, we want you to consult the authorities and set the BEE JOURNAL right.

Look in Vol. 7, page 111, and you will see what the founder of the JOURNAL says. I think you will find that the word *apiarist* is out of use, if it was ever in use; and more, you will find that the definition of *apiary* and *apiarist* in Webster, is not what is meant now by apiary and apiarian. We are perfectly willing to let Prof. Cook and others have Webster's definition, if it will satisfy them. Webster says: "*Apiary* is a *place* where bees are kept; a *stand* or *shed for bees*." Apiarist is "one who keeps an apiary." (We Italicise a few words to draw particular attention to what an apiary is). Consequently, according to the above definitions, an apiarist is a person that keeps a stand or shed or place where bees are kept. It is not necessary that he should tell a bee from a toad, to be an apiarist, according to Webster. If *apiary* now means a shed, stand, house, or cellar, then my apiarianism is not sound.

I take apiary to mean a number of stands of bees; apiarian, the person that keeps and manages them; apiculture is the science or art of bee-keeping; apiculturist is one who practises or understands the art of bee-keeping; and apiarianism is the general belief of apiarians. The next man that makes a dictionary (if he is a *live man*) will have all these words in it; and if he does not, he ought to; for we need every one of them. And I think that when Prof. Cook has looked this matter up he will haul in his horns (one at a time) and not "bulldoze" us any more with *apiarist*, for it is appar(i)ent that his authority is antideluvian.

N. CAMERON.

Lawrence, Kansas.

[Friend N. Cameron suggests that we would be going back to the time when a "king bee" was acknowledged, should we adopt Webster's use of the word *apiarist* for the noun. He bases his principal argument for the use of *apiarian* as a noun, on the fact that the pioneers in apiculture used it thus. Is *he not*, therefore, drifting back towards the "king bee" age? The best of writers and scholors, to avoid ambiguity, prefer a difference in the orthography of the adjective and noun, in the use of such words, *e. g.*, as anatomist, apiarist, botanist, entomologist, hydropathist, physiologist, etc., etc. Webster, and all lexicographers, are the authority, for the position taken by this JOURNAL. Worcester defines the word apiarist: "a keeper of bees"—not *toads!* A "keeper" is "one who has the management, care or superintendence of anything;" hence, a *beekeeper* (or apiarist) is *not* merely "a person that keeps a stand or shed where

bees are kept" — but one who has the care, management or superintendence" of the BEES themselves! Then again, when it is known, that in the last edition of Webster, sixty or seventy of the ablest philologists and scientists of any age were its authors, the reliability of its position should scarcely be questioned. For these reasons, and others that might be given, did our space permit, we "hold fast the form of sound words."—ED.]

Michigan B. K. Association.

This Association held its annual meeting at Lansing, on Wednesday and Thursday, March 14 and 15; Prof. A. J. Cook, Pres.; A. B. Cheney, Sec. *pro tem.*

After the opening exercises, consisting of prayer and music by the choir, a paper on "Foul Brood," by C. F. Muth, was read. A short discussion followed—all agreeing that foul brood was the greatest difficulty which apiartsts had to contend with.

W. Porter had introduced foul brood into his apiary by purchasing old comb. His plan has been to destroy comb and all; but after hearing Mr. Muth's paper, he believed *that* plan to get rid of the disease was worthy of a thorough trial.

Dr. Whiting, of Saginaw, believed the only way to get rid of it was to destroy the comb. He had no faith in any known chemicals to effect a permanent cure. After destroying the comb he removes his bees into new hives, which have been drenched with hyposulphate of soda or a solution of common salt. He has never tried Mr. Muth's remedy.

L. B. Baker wished to know if the disease could be communicated from one colony to another.

The president said the disease is supposed to be fungoid in its nature, and the spores are liable to be carried by the bees from one hive to another.

A letter was read from Mr. Kelly, of Ionia Co., in which he asked the convention whether any of its members had ever communicated foul brood to their apiaries by introducing foreign queens. This question was not answered.

Pres. Cook then delivered his inaugural address.

"Honey as Food," a paper by Julius Tomlinson, was then read.

Messrs. Porter, Hunter, and Ross were appointed a committee on the various apparatus exhibited; and Messrs. Massey, Dicer and Allen, on resolutions.

C. W. Garfield and wife sang the song, "Musings of an old Piano," and the convention closed its first session.

THURSDAY.

H. T. Ross, of Milford, gave his experience of 50 years in wintering bees. He claimed they might be wintered either on summer stands, in the cellar, or by burying; giving preference to the latter. He cited cases where he had kept small stocks, mere nuclei, by the latter method. He argued that there should be air space above and below, placing much stress on ample ventilation.

A paper on "Wintering bees on their Summer stands," by J. H. Townley, was read.

Following this paper an interesting discussion took place. The general opinion seemed to be that bees might be safely wintered, either in the cellar or on their summer stands. Mr. Hetherington, of Saginaw —brother of Capt. Hetherington, of N. Y., who has upwards of 1,000 colonies—gave preference to packing either with straw or chaff. But an evident majority were in favor of wintering in the cellar. Letters were read from nearly all parts of the State, announcing that bees are wintering finely. It is very plain that Michigan bee-keepers do not look upon wintering as any longer a difficult thing.

James Heddon read a paper on "Desirable Combs—how Secured."

A paper on the "Composition of Honey," by Prof. R. F. Kedzie, of the State Agricultural College, was read.

Mrs. L. B. Baker read a paper on "My experience as a Bee-keeper."

For the first time in the history of this Association, ladies were present and took part in the exercises. Miss "Cyula Linswick" contributed a paper entitled "Shall women keep Bees?"

Otis Fuller read an essay on "Farmers as Bee-keepers." He thought that if they were adapted to the business they might make bee-keeping very successful, and proved the assertion by relating his own experience.

Frank Benton, of Detroit, presented a paper entitled "The Apiarist." He claimed it to be the duty of persons contemplating bee-culture to learn its theory. In Germany a young man who wishes to engage in the business first serves an apprenticeship under some practical and learned bee-keeper, where he acquires skill and at the same time makes himself familiar with all the theories pertaining to the breeding of bees. Mr. Benton dwelt at length on the extensive apiaries of Germany, and their many able text-books and journals published in the interest of bee-culture.

The person who would become a successful apiarist must be possessed of intelligence, a disposition to investigate, *i.e.*, an inquiring turn of mind, and an inclination to be thorough in what he undertakes. Without these he will not sufficiently master theoretical bee-culture as to enable him to understand the practical difficulties he will surely encounter. He must have that disposition which leads men deeper and deeper into the mysteries of nature—which makes them enthusiastic in the pursuit of knowledge. Industry and perseverence must be shown by the bee-keeper. He must labor with both brain and hand. Mr. Benton thought that Americans might take, with profit, a few more lessons of their trans-Atlantic friends, especially in patience and thoroughness; but believed that, with their practical tendencies, our people might yet lead the world in apiculture.

W. L. Porter, of Northville, read a paper on the relative merits of the "Italian and Black Bees," claiming superiority for the latter race.

A lively discussion followed. No one present fully concurred with the writer of the paper. The president said that while Mr. Porter's premises were correct, his conclusions might not be. While black bees

are the best to go into boxes, that is not a conclusive argument in their favor, for honey in boxes is not always as desirable as honey in small frames. Again, the Italians may dwindle more rapidly in the spring, owing to their more active habits, which is really in their favor. But the apiarist should prevent early spring flights and thus remove the difficulty.

It was voted that the papers read should be placed in the hands of the Sec'y of the State Board of Agriculture, that he may select from them such matter as he deems valuable, to be published in the annual report of said board.

The following committees were chosen, in accordance with the suggestions of the president, and they will report at the next meeting:

Wintering—Otis Fuller, Mason; A. B. Cheney, Sparta Center; G. E. Massey, Lakeview.

Honey Plants—Fish Bangs, J. A. Porter, and W. J. Beal, Lansing.

House Apiaries—H. A. Burch, So. Haven; W. L. Porter, Northville; Dr. Whitney, Saginaw.

Markets—J. H. Heddon, Dowagiac; A. H. Russell, Adrian; Dr. Hunter, Manchester.

"Shall Farmers keep Bees?" was the subject of an essay read by A. B. Cheney.

A paper on "How may we Improve our Bees?" by Ch. Dadant was read.

A paper on "The reciprocal Benefits of Bees and Plants" was read by Prof. W. J. Beal, who illustrated his subject by numerous drawings, and showed that while bees were busy in gathering honey, they performed another great part in the beneficent plans of the Creator, by carrying the pollen of male seed-bearing plants to the female plants.

The Committee on Apparatus on exhibition reported as follows: "Having examined the fixtures, apparatus, honey, etc., on exhibition we would report the following list:

"The patent bee hive by A. H. Russel, of Adrian, claims to be a combination of the movable frame and the box hive. It has merits which commend it to careful consideration of the apiarist. Mr. Russel also has on exhibition a honey box with glass sides, made so that the side may be taken out without destroying the box or breaking the comb.

"A movable comb hive with sectional honey boxes, by Barker & Dicer. The boxes are so arranged that they will contain five sections of honey which may be separated without breaking the comb, each section weighing from 2 to 2½ lbs. This honey box is worth the attention of bee-keepers.

"H. T. Ross exhibits a two-story hive, also a Diamond frame hive, which he thinks is moth proof.

"A. I. Root (Novice) exhibited a collection of apiarian supplies; among which is his lamp queen-nursery, which has merits worthy of consideration. Among his collection is a modified Gallup hive, spring balance, binder for *Gleanings*, candy for feeding, bee knife, bee veil, and sectional frame for surplus honey.

"Prof. Cook exhibits a bellows smoker of unquestionable merit.

"L. C. Blood exhibits three sectional frames of honey.

"W. L. Porter has a box of buckwheat honey, nicely stored in a sectional box; comb guide, and a piece of worker comb that was used by a fertile worker.

"Specimen copies of the bee papers of the U. S., viz.: THE AMERICAN BEE JOURNAL, Chicago, Ill.; *Bee-Keepers' Magazine*, N. Y., and *Gleanings*, Medina, Ohio. Your committee would recommend every bee-keeper to take at least one of them.

W. S. PORTER.
E. HUNTER."

The Committee on Resolutions reported as follows:

"Your committee respectfully submit the following:

"*Whereas*, We have been permitted to meet on this our annual convocation in the Supreme Court room in the city of Lansing, Mich.; and

"*Whereas*, this Association has been well attended and all thereby largely benefited and encouraged; and

"*Whereas*, We desire to express our sincere thanks for favors and aid furnished us by the citizens of Langing, therefore be it

"*Resolved*, That we tender our thanks to the landlords and citizens of Lansing for the attention paid us. That we are under obligations to Messrs. A. E. Young, H. M. Turner, G. A. Husty, Misses Mary E. Baker, Ella Baker, and Prof. Garfield and lady for good music furnished during the session, and to Miss Addie Berridge who presided at the organ; also

"*Resolved*, That we feel grateful to the Revs. Dr. Duffield and Cooley, for their personal attendance and services; also

"*Resolved*, That we tender our thanks to those who supplied such a nice collection of apparatus for exhibition; to absent friends for the excellent papers submitted; and to the large number of ladies whose presence tended so largely to encourage the interests of the Associaiion; also

"*Resolved*, that we feel especially grateful to Prof. A. J. Cook for his untiring and persistent labors in behalf of the Society, and for the able and unpartial discharge of his duties as presiding officer; to the reporters of the press for favors granted; and to the officers of the Agricultural College for courtesies extended.

"*Resolved*, that these resolutions be published in the city papers of Lansing and the various bee papers."

G. J. MASSEY, *Chairman.*

It is evident that the bee-keepers of Michigan, although weak in numbers, do not lack that enthusiasm which is so essential to win success in any calling.

The next annual meeting will be held at Adrian.

A. B. CHENEY, *Sec'y.*

[Some of the many papers read before the Association will be found on the following pages; others will be pubished as fast as our space will permit.—ED.]

Inaugural Address.

Ladies and Gentlemen of the Michigan B. K. Association:

I beg leave upon this pleasant occasion to congratulate you, that our Society—the oldest living organization of its kind, also the second one organized, so far as I can determine, in the United States—is no less active, vigorous, and useful withall than it is aged. That it has been a moving force in our State, aye, and in our country, needs no proof at my hands. Yet the fact that the value of such associations has been called in question by one of our first editors and writers in this department, and more recently by one of our own members, one whom we all respect, and whose wisdom and experience takes no second place among us; together with the fact that my own convictions are most emphatically opposed to this view, have led me to select the following as the subject of my address:

Are apiarian associations— like ours — worthy of encouragement?

Of course I need not advocate before an intelligent audience like the one I am now addressing, the importance of social intercourse, especially between those of like occupation and interest. That the tendency of such gatherings is to broaden our sympathies, and to heighten our regard for each other, and thus surely to elevate and refine, no one will dispute. As this benefit—no inconsiderable one you will all grant—is universally conceded, I will not tarry in its discussion longer than to express the hope that in future this feature may be indefinitely advanced, by the more general attendence, and participation of our wives, sisters, and daughters. I sincerely hope that in all our future meetings, no inconsiderable portion of our audiences and essayists shall be those than whom none should be more interested or may be more profited, who heretofore have been too much shut out from the pleasures, profits, and healthfulness of out-door employments.

The second point I would make is the fact, which I am sure I shall be able to demonstrate, that these gatherings, which I believe can only be successfully sustained by a State or States association, richly repay all the trouble and expense they may cost in advancing the interests of apiculture.

This point might be sustained by anology alone. What interest has ever yet succeeded in attaining to any great proportions, without calling to its aid the co-operated influence of its patrons—influence whose very existence depends upon association? The very universality of conventions among all classes, composed of those of every art, trade and profession, is of itself sufficient guarantee of their value. So we may well conclude that if the apiarists of our State and country intend to take a position worthy the important interest they represent, they must continue to sustain and make even more fruitful of good, this and kindred organizations.

But does our experience, now covering nearly a decade, sustain this argument from analogy. How many of us there are who would give a quick yes to this question? Whatever may be affirmed of other industrial arts, no one will question the fact that successful apiculture is based on both science and experiment. The progress of the art, yea and of individual success as well, points no less to scientific research than to wise and wide experience.

We have only to mention the names of Huber, Siebold, Dziertzhon and our own Langstroth, to remind you how much scientific research has done for the apiarist. Three of these names, and I may well add that of Quinby, recall the immence array of experience which so mightily aids the apiarist of to-day. Now must each glean all the scientific truths, discovered and unknown, and gather all the experimental facts known and yet to be discovered, for himself? This is so utteriy impossible that the very question seems absurd to any one who rightly understands the subject. Yet how can we pass as by one mighty stride these lower rounds of apiarian progress so well as by being lifted by those of more knowledge and experience, at just such meetings as this? Here the veriest novice, if studious and attentive, may learn so rapidly that he has only to confirm his yet crude ideas by a comparatively brief personal experience that he may labor with good hope of no mean success.

It may be said that our numerous treatises and periodicals may better accomplish this purpose. They may be studied, not merely heard and then lost. Far be it from me to discourage the reading or underestimate the value of our bee literature. I believe that successful apiculture demands that these invaluable aids be likewise appropriated. Yet I believe that without our conventions these would languish. Each reciprocally sustains the other. Without conventions, our journals would go begging for substance, while both the journals and text-books would look in vain for remunerative patronage.

The above suggests another way in which these conventions powerfully aid in advancing the interests of bee-culture. There is no agency which is so powerful in recruiting the ranks of our brotherhood. If our meetings are migratory, as they should be, people in all parts of the State will learn of the inducements to become apiarists, and hasten to avail themselves of its pleasures and profits. Our local and State press which would otherwise be comparatively barren of such facts and figures, will reveal to all our people a new avenue for profitable thought, study and exertion, and hundreds will be led to adopt one of the most pleasant and remunerative of rural pursuits, and the liquid sweets of myriad flowers will no longer volatilize to be dispersed by the summer breeze, but will be gathered up and made to contribute to the wealth and comfort of our people. Surely he who said "Gather up the fragments, that nothing be lost," will add his kindly blessing to our labors, which aim to foster the good work of storing up the unlimited sweets with which nature has filled the flowers of the field, forest, and even wayside.

Again our discussions here, if wise and well ordered, will lead each of us to new thoughts, experiments and research. How many questions there are, both of science and practice, which as yet are wholly unsolved. For instance, who knows as yet, just why the bees are led to build drone comb, all the causes which impel to swarming, just what accelerates the development of the queen? In practice, too, what a

wide difference of view, as to house apiaries, artificial swarming, artificial foundation, wintering, kind of honey to work for, etc., etc. Now where, I ask, is the word to be spoken, the thought uttered or the hint dropped, which shall lead to these discoveries or settle these yet mooted questions, unless forsooth it be right here in these conventions. In fact it should be our constant aim to stimulate to the utmost in our power, thought, study, observation, and experiment, which should have for its ultimatum the complete elucidation of apiarian science and the full perfection of apiarian practice.

Again the tendency of these gatherings must be to impel each of us individually to better work and brighter success. As we listen to those who have far outstripped us, in their escape from reverses, and in their pecuniary gains, we resolve that we shall do as much as they. We know that luck is no factor in this problem, and we are bound that we will acquire that skill and knowledge that shall know no superior. We sit at the feet of these Gamaliels,most attentive to gain and assimilate their every thought, reach out to grasp their better methods, and if we do not at once advance to the front we are conscious of substantial progress, and thus take courage.

The last point which I shall urge is the opportunity afforded by conventions to induce concerted action towards the accomplishment of that which cannot be gained by individual effort. The subject of adulteration, proper grading of honey, and whatever has to do with the general market; these and all kindred subjects which concern the general welfare of our business can only receive that attention which shall point toward efficient remedy of existing evils through the aid of organization. If it proves true, for instance that we are to sustain our markets, by the high character of the goods we offer, how much sooner may we hope, through our conventions, to persuade all to put nothing in the market but what shall charm the eye and captivate the taste of the consumer. By wise cooperation in these directions, we may soon hope to change the burdened song of "What shall we do with our honey?" to the more cheerful strain of "How shall we supply the demand?"

But it has been asked among us: why advance our pursuit and broaden our field,and thus increase the supply of our products, till there is no demand, when our markets shall be stagnated and we bankrupt? This is the old sordid—selfish view which has never yet done honor either to the head or heart of him who advanced it. All nature and experience proclaim against him who by word or action declares that he has a good thing which he wishes to monopolize. All past history denounces his wisdom no less than his morality. How much more noble and attractive that spirit which thus reasons: My vocation brings me profit, pleasure and health; oh, that others might share with me its enjoyments. Nor is such a one less wise than generous. Let us study the effect of an increase in our production. A temporary decrease in price of honey would doubtless follow; but this decrease in price would stimulate demand, which in turn would lead to a just appreciation of its merits as a luxury, and with the newly-developed taste would come a demand which would raise the price far above its former status. Pres. Abbot tells me that in Switzerland honey is served at every meal. I have traveled a good many thousand miles in America, and so far as I remember, I was never yet offered honey at a hotel or restaurant. No, gentlemen, America does not consume a tithe of the honey which she might and should, and I believe that the reason is the slight production. This not only looks reasonable, but is in accordance with analogy through all the past, the world over.

But should not an increase in the production act as did Whitney's cotton gin in the price and consumption of the great staple of the South, as I verily believe it would; there are still other good and valid reasons why we should labor for this consumation.

1st. We shall thus add largely—may add immensely—to the productive capital of the country. There are townships in this county which sell annually from $1,000 to $3,000 worth of honey. Nor are these stocked to their utmost. Call it $1,000 and multiply by 16, and we have $16,000 as a mild estimate of the possibilities of our county; multiply this by 40—we certainly have that number of counties in the State that would stand peers to Ingham County—and we have $640,000, an amount which might be realized were our resources fully developed. An amount which in two years would pay the cost of that magnificent structure, within stone-throw of this place, which is so rapidly nearing competition, and which is to be an ornament to this city and State. Multiply the above amount by 37, and the estimate is still low, and we have a grand total of more than $23,500,000; which shows the possibilities of our country. This may sound big; yet when we remember that one man in Southern California shipped 13 car loads of honey East, last autumn, the sound is somewhat mellowed. How little reason have we to look with forboding spirit upon our country's future, notwithstanding financial panic and national debt, when such undeveloped resources lie thickly about us.

Again, bee-keeping affords most wholesome recreation, especially to any who love to look in upon the book of nature and study the marvelous pages she is ever waiting to present. To such there is a fascination about the apiary, which of itself is a rich reward for the time and labor expended. I doubt if there is any class of manual laborers who engage in their business and dwell upon it with the same fondness as bee-keepers. Were there no profits, I should be slow to part with those models of industry whose marvelous instincts and wondrous life-habits are ever ministering to my delight and astonishment. And like tnose who wear the red ribbons, we desire that others should share the pleasures which makes us glad. And so it is good to induce others to engage in what has been very properly styled the "poetry of rural pursuits."

Again, the profits of bee-keeping, as compared with the expenses and labor involved, offer very cogent reasons why we should work to advance its interests. Our granger friends think 10 per cent. usurious, and ask our law makers to legislate against such exorbitant rates. But what would they say to bee-keeping which offers from 100 to 300 per cent.? I am sure that the profits of in-

telligent bee-keeping are in and of themselves quite sufficient to warrant a wide increase in the business.

Again, the very health and life of our people demand that a considerable portion of their food should be sweets. Now our sugars and especially our commercial syrups are so adulterated that they are frequently poisonous and quite unsafe for food. So by increasing our production of honey we are doing an important sanitary work, supplying our people with a safe, wholesome and necessary article of food. To be sure extracted honey may be adulterated, but in this case it is easy to obtain the pure, which is not the case with our syrups. Is not he who increases the wholesome, nutritious food of a people as much of a philanthropist as he who increases the number of blades of grass? So you see, ladies and gentlemen, that we are a company of philanthropists.

Again, there is no business that serves so well as apiculture for an avocation. It offers additional funds to the poorly paid, out-door air to the clerk and office-hand, healthful exercise to the person of sedentary habits, and superb recreation to him whose life-work is of the dull, humdrum routine order, and can, with a little thought and management, be so planned as not to infringe upon the time demanded by the regular occupation. Indeed, we *are* philanthropists if we but succeed in calling the earnest attention of the above named classes to practical apiculture.

We shall, too, do great good in calling the attention of the young to apiculture, and thus lead many to its practice. The attention of our young people will thus be called to nature, and the bright and sprightly will hardly escape being won to its fascinating study. I need not to pronounce a panegyric upon such thought and study to such an audience as this. The tendency to refine the taste, elevate the desires and promote manhood, especially when exerted on the susceptible characters of youth are known and appreciated by you all. How better can we counteract the vicious tendencies of the street, or shield against the luring vice and damning influences of the saloon.

Lastly, we are bringing succor to those whom society has not been over ready to favor—our women. Widowed mothers, dependent girls, the weak and the feeble—all may find a blessing in the easy, pleasant, and profitable labors of the apiary. Some of the most successful apiarists of our State and country are ladies. Of these some were led to the pursuit by waning health, grasping at this as the last and only successful weapon against the grim monster. I believe, ladies and gentlemen, that it is a sacred priviledge, no less than a sacred duty which devolves upon us, to bring this to the attention of our sisters as another means of gaining food, rainment, health and pleasure. We shall have evidence from some of our lady friends—practical apiarists—at this meeting, of what they may do. Energy and persistence, coupled with thought and study, are sure to bring success. I sincerely hope and trust that at this and all future meetings of our Society, this feature may be held prominent, for in so doing we shall work a work that will be indeed twice blessed.

Before closing this address, I would offer a few suggestions for your consideration:

1st. Would it not be well to take some step towards procuring legislation, whereby our proceedings shall be incorporated in the Report of the State Board of Agriculture? The State dissemmates agricultural matter and the proceedings of the Pomological society. Why not the valuable papers and discussions of this society? If this is considered wise, should we not become a co-operative body? Surely 9 years of vigorous activity would warrant this. I suggest a committee of three to act in these matters.

2d. Shall we not offer to the Secretary of the State Board of Agriculture the papers read here, and the discussions as recorded by the secretary; that he may, if he choose, incorporate the most valuable in his report?

3d. I would suggest the appointment of the following committees to report at our annual meeting:

First, on honey plants—quality, time to sow, time in blossom, how to plant, and amount of seed to a square rod.

Secondly, on the subject of house apiaries, shall we encourage their construction in our State?

Thirdly, on wintering. To gather statistics for the last six years. Not only as to loss, but as to the apiarist's opinion, and the method of preparation practised.

Fourthly, on the best method to stimulate and protect our honey markets.

Fifthly, I would propose that we adopt the principle of having our meeting migratory in future. Endeavoring to go where we are wanted, and where we will meet a warm reception.

Lastly I would call your attention to the necessity of some action in reference to the National Association. Letters will be read from the president and secretary, desiring our views and co-operation. I would suggest a committee of three to take the whole subject into consideration and report on the same in time for action before we adjourn.

A. J. COOK.

Shall Women keep Bees.

READ BEFORE THE MICH. CONVENTION.

Apiculture, like most out-door avocations, is almost monopolized by the stronger sex. In the days of our grandmothers this was a natural and necessary consequence of man's fitness and woman's want of fitness for the work. Picture a woman's helplessness in view of a swarm safely clustered in the top of a tall tree! Imagine her lighting the brimstone torch and pitilessly dooming to death her faithful little laborers—if you can! Need we wonder then that ere the introduction of movable frames, women did not aspire to be bee-keepers?

But, that so few women are interested in apiculture to-day is less easily explained. A friend, who has recently visited in New Hampshire, Vermont, New York, and Ohio—in country places, villages and cities—tells me that during her three month's absence, she met just one woman who knew something about bees. But, it may be asked: does apiculture offer any special inducements to women? May it not be that the work, no longer impossible, is still for them undesirable?

These questions cover the whole ground. With all due deference to the opinions of our brother bee-keepers, they are questions

which can justly be answered only from a woman's standpoint. No intelligent bee-keeper is insensible to the attractions, other than pecuniary, which apiculture offers. Will he not grant that an intelligent woman may be equally sensitive with himself to the fascinations of a pursuit which is lifted far above most manual labor avocations by the mental stimulus it imparts. Moreover, her pleasure will be greatly enhanced by its appeal to that side of her nature which leads her to delight in any living creature which claims her care. I do not say that she will care for her pets more wisely, or that, as a study, she will find them more interesting than does her brother, but, do I claim too much when I say that her work, as compared with his, will be more a labor of love?

Still, with most women, as with most men, who engage in apiculture, the primary motive is profit. At the outset they have too little knowledge of the subject to be able to anticipate the pleasure which is in store for them. But no woman is insensible to the magnetic attraction of a little additional spending money. And I do not hesitate to say that to many women apiculture offers this inducement.

It may be a smaller portion than would satisfy our brothers—is very likely to be so, in fact. For we may as well frankly confess—to ourselves, at least—that our lack of physical strength is a disadvantage. Though the care of a few colonies may be only recreation, the woman who experiments in bee-culture somewhat extensively, will find that it means, at certain seasons, genuine hard work. In some cases she may be able to supplement her own powers by the friendly and gratuitous help of stronger arms; but it is needless to say that this is not exactly bee-keeping by *women*. A woman depending only upon her own resources, must not expect to do all that a man possessing thrice her physical strength might do in her place. Shall we conclude, therefore, that the work is for her undesirable? One of our most distinguished apiarists draws this conclusion, at least he objects to apiculture as an employment for women, on the ground that it is too laborious.

But does not the same objection apply, equally, to much of the work which custom and necessity require of the ordinary American housewife? I would gladly purchase exemption from in-door work on washing day, by two day's labor among the bees; and I find two hours at the ironing table more fatiguing than two hours of the severest toil the apiary can exact. I noticed last summer that Mary (our girl) seemed to esteem it a great privilege to be allowed to assist a little in the bee-yard, and that she always went back to her dish washing with a very audible sigh. I do not remember that I ever pitied myself or envied Mary—not even when my own work meant exposure to the mid-day sun, with the mercury near 90, while hers was only preparing the noon-day meal by the side of the hot kitchen stove.

But we have digressed. To return to the point in consideration, I repeat that apiculture offers to many women not only pleasure but profit. But I counsel no woman to engage in the pursuit, with a view to profit, who has not the vantage ground of a home. Possessing this, any woman may, with little risk, test her adaptation to the work, and increase as knowledge, courage and success may warrant. Granting her intelligence, she will make few expensive blunders, in the shape of patented hives, non-swarming attachments, etc., after the first year. Whether she purpose keeping a few or many colonies, she will find use for all the information she can in any way obtain. She will study our standard works on apiculture, and read discriminatingly our bee journals. But she will observe, think and decide for herself. She will, or should, make haste slowly. By the time she has served an apprenticeship of three seasons, she will be able to judge for herself, in view of her location, and the circumstances of her life, as to the prospect of receiving adequate compensation for her labor.

There are many cases—I think women know best how many there are—where a very small amount of profit may be a very great inducement. It may bridge over the difference between positive want and comparative comfort—piecing out the scanty income so that it may cover the necessary cost of living. Or, where the family purse is just sufficient for the common comforts of life, it may supply the wherewithal to gratify individual tastes and wishes. And whatever this may mean—books, music, tasteful household surroundings, gifts to friends or contributions to charities—be sure that it means, also, a more self-respecting spirit and a brighter and happier home.

The pursuit is as free to woman as to man. There is no prejudice to encounter; no loss of social standing as may be the case in some other employments. The lady bee-keeper may expect some manifestations of mild surprise on the part of her friends, but there will be no disapproval; and in time, if she be moderately successful, she may be amused to find that her neighbors are disposed to greatly exaggerate her modest gains, and are beginning to regard her as an exceptionally capable person.

There are women who should never attempt the care of more than a half dozen colonies; and so many as these, only after they have learned how to manage them. They have cares and duties which may not be put aside, and which they have no disposition to neglect. So far, and only so far, as the work is rest and refreshment may they safely be encouraged to venture. But such a one will, perhaps, enjoy more than her sister who is able to do more. She will have more time for study, for observation, for experiments; and as her familiarity with each colony will be closer, so will the interest—I might almost say the feeling of personal attachment—be stronger. And no more than against the flowers, which she cultivates for their own sake, should the value of her time be charged against her bees. Her profits, therefore, will be larger, proportionately, than if she attempted more.

I have admitted that bee-keeping is harder work for women than for men. But I believe that woman may do much toward adapting the work to their own requirements. They must think for themselves in this matter. Our brothers can hardly be expected to remove for us, or even to recognize as obstacles, what does not impede their own progress. For instance, your neighbor may use the largest of the

four or five different frames in general use, and may be very successful therewith. Having only your interest in view, he may advise you to follow his example.

I earnestly counsel you, my sister, to do no such thing. I will not say that his frame is not absolutely the best; that is a disputed point. But I do say that it is not best for *you*. Choose the smallest frame in successful use, and justify yourself to yourself by comparing your ability to support heavy combs at arm's length with that of your neighbor. Justify yourself to your neighbor by quoting the opinions of practical and successful apiarists who endorse the smaller frame.

Since I have ventured thus far, I shall permit myself to indulge in a few more words of direct exhortation. It has been said that women ruin any trade or business into which they enter as competitors. Let us see to it, my sisters, that this be not said of us as bee-keepers. Whatever the market price of woman's labor may be, a pound of honey is worth all it will bring. Give away as much honey as you please, but don't undersell your brother bee-keepers! And by all means put your honey in as attractive shape as is possible. Do not let it be said of us that we are content with a lower standard of excellence than are our brothers!

Be prepared from the outset for difficulties and trials—you would meet them in any pursuit—be prepared to meet and overcome them, or, if not, to get around them in some womanly fashion, and go on. I am almost of the opinion that the whole secret of successful bee-keeping is perseverence. There is risk in the business. I would not wish you to ignore this fact. But an experience of 5 years leads me to believe that the risk is less than is generally supposed. After the first year make it a rule that your expenditures shall not exceed your receipts from surplus honey. Then, though in a single winter all your bees should perish, you will have hives, combs, and experience left, and need not consider yourself bankrupt. Take no risk you can avoid, put into your work your whole self—head, heart and hands—and demonstrate that women may keep bees successfully!

CYULA LINSWIK.

The Composition of Honey.

READ BEFORE THE MICH. CONVENTION.

Honey is one of the oldest things under the sun. At one time it was probably the only form of sugar known, and to-day is one of our most delicious articles of food. Does it not seem strange, then, that in this scientific age so little is known of its real composition or the changes it undergoes?

Honey is composed of grape and cane sugar, together with water, acid, and waxy matters. If honey be burned completely, a grayish colored ash remains, which amounts to about 15 per cent. of the original honey. In this ash I succeeded in obtaining reactions for silica, lime, and iron. There is also a small quantity of potash and phosphoric acid in honey. To estimate the quantity of these present, I took two portions of "cap" honey, free from pollen and wax, and burned them to a coal-like mass. In one, I extracted the potash with muriatic acid, and in the other, phosphoric acid with nitric acid, and estimated them in the usual manner. The following are the amounts obtained: Potash, .06 per cent.; phosphoric acid, .08 per cent. These substances would naturally be present in honey, as they are found in soils, and circulate in the juices of plants.

There are many things connected with honey, about which at the present time but little is known. The following are a few:

1. Has honey a definite composition? Is there any difference between the relative amount of sugar in honey made from buckwheat, basswood, clover, golden-rod, brown sugar, etc., or between the relative amounts of cane and grape sugar? Probably this question can only be answered by comparing the analysis of different kinds of honey.

2. Does the bee add anything to nectar in changing it into honey? On this point there is wide difference of opinion. But I know of no experiments having been tried to settle the matter. Perfectly pure honey, that has been dried completely, contains about 1 per cent. of nitrogen. Does the bee supply this nitrogenous matter? To decide this, I gathered some nectar from flowers in the Agricultural College greenhouse (from the azalia, rhododendron, and fuschia, but principally from the last), and carefully tested it for nitrogen. The result of my experiments is that nectar *does* contain traces of nitrogen. Therefore the fact that honey contains nitrogen does not prove that it was furnished by the bee. May not this question be decided by feeding bees upon pure white sugar, which contains no nitrogen, and afterwards examining the honey to see if any nitrogenous matter has been added to it?

3. After honey has stood for a certain length of time, a part of the grape sugar crystalizes out, and granulation or candying is the result. The cause of this change is not known. May not the conditions under which granulation occurs be determined by a series of experiments, by keeping honey at different temperatures, etc.?

Answers to these questions may not advance the market value of honey a particle, but we shall enjoy the satisfaction of knowing the truth of the whole matter.

R. F. KEDZIE.

Ag'l College, Lansing, Mich.

Shall Farmers keep Bees.

READ BEFORE THE MICH. ASSOCIATION.

It is much to be regretted that there is any necessity for the discussion of this question. It is unfortunate that there still remains any doubt upon a question of so much practical value to the agriculturists of this country. In its consideration I shall briefly endeavor to answer some of the reasons which are given by farmers why they do not keep bees.

The objections raised may be said to be these: First, a lack of time; second, fear of being stung; and, third, a lack of information in management.

First—As to a lack of time. A few pertinent questions to the average farmer developes the fact that the principal object sought in tilling the soil is gain. That this principle has a governing influence in determing the kind of crops raised and the system of management; that wheat is sown because the crop pays better than oats, that hops pay better than buckwheat; that the

raising of cattle pays better than mules. The question is then a mere question of profit. And if $100 invested in bees will give a larger profit than the same amount invested in most branches of agriculture, then the first objection will be answered.

A farmer located in any average agricultural district in Michigan can purchase ten hives of bees (and if not in movable frame hives can transfer them to such), an extractor, honey knives, bee hat, and other necessary appliances at a total cost of not over $100. The time necessary to care for them each season would not exceed in the aggregate 20 days, at say $1.50 per day, being $30. Now what will he receive in return? Judging from my own experience and that of others who have practically applied the improvements in bee-culture made in the last 20 years, he will obtain not less than an average of 75 lbs. of surplus per hive, making 750 lbs., worth at least 12½c. per lb., or $93.75; deducting the value of the labor, and he has $63.75 as a profit on the original investment of $100—an income of 63¾ per cent. Aside from this in most years there would be an increase in stocks which would offset any losses which might be suffered in wintering.

But is not the above estimate too high? Let us see. During the past year—and it was not above an average honey season in my section, linn or basswood yielding but little honey—from 29 hives, 20 of these being in box hives, I obtained 2,000 lbs. of honey and 25 new colonies. In one season previous, being desirous of ascertaining just what a number of colonies would produce if attended to carefully, and increase of colonies prevented; 17 hives averaged 125 lbs. of extracted honey each. I am satisfied the estimate is not too high, but the profits might be often larger in extra seasons. Of course my estimates are made on the supposition that the system of management is in conformity with the improved methods, and not on the old plan. I think I need not waste any time in presenting evidence that the profits above mentioned are larger than those secured in most branches of agriculture, and shall assume that the first objection is answered.

The second objection—the fear of being stung—is certainly a very *feeling* objection; and a warm reception by a score or more hybrids, without protection, would put a large majority of persons to flight, but fortunately such cases are rare, and with the use of the bee hat all danger is avoided. Occasionally there is a person who is so seriously affected by the virus of a bee that it would be imprudent for him to have anything to do with them; but we find only one such person in a thousand. Many persons care little for the sting of a bee, scarcely more than for the bite of a mosquito.

The fear of being stung is a small objection, and the pain and inconvenience is one of the unpleasant features of the business, and what business has not its disagreeable points? Crops fail, all kinds of stock are subject to disease and accident; pear trees are struck with the blight, the curculio destroys the plums, even the dog runs mad.

The third objection—a lack of knowlege of how to manage them—is the most serious one. The first two are merely used to avoid giving the true reason which would involve an acknowledgement of ignorance, which unfortunately, we oftimes hesitate to make. It is a fact not to be disguised that the successful keeping of bees requires careful study and prompt and timely care, as much perhaps as any branch of agriculture; but happily the bee-keepers of the U. S. have been a public-spirited and unselfish class, and through the medium of our bee journals, pamphlets, and books, have placed within easy reach of all people, a full and complete knowledge of the vast improvements made in the management of the apiary during the last ten years. And what more pleasant way can the farmer employ the long winter evenings than in making himself, his wife, sons and daughters, familiar with "Langstroth on the Honey Bee," "The Mysteries, by Quinby," and the equally valuable and still later information contained in the journals of to-day. In this manner the natural history of the bee and the theoretical management of the hive can be pleasantly obtained. And not only this, but the boys will be influenced to spend their earnings at home instead of at the village store or saloon; and another avenue of enjoyment and profit will be opened for our farmers and their sons and daughters.

Now, shall farmers keep bees? While the majority of them do not, and probably will not, yet I unhesitatingly reply that they should. It is a true saying that "The man who loves his bees, loves his home." And if our farmers could be induced to make themselves familiar with the wonders of the hive, I am certain that an enthusiasm would be aroused which would give us many skilled entomologists, a new interest would attach to the home circle, vice would be avoided, and a new element of profit would be introduced in agriculture.

A. B. CHENEY.

Reciprocal Benefits of Bees and Plants.

READ BEFORE THE MICH. CONVENTION.

The mutial benefits of insects and plants are wonderful, varied, and manifold. With some plants, like Indian corn, pines, and spruces, the wind is the prominent agent in distributing the pollen. To atone for this imperfect method and the great waste likely to follow, nature secretes a profusion of the fertilizing dust. In the case of the trumpet-creeper and many tropical plants, the humming bird often transfers pollen from flower to flower. In some instances snails do a similar work; in others, water, as in the case of our eel-grass. In many cases flies, butterflies, moths, beetles and bugs are very efficient in the same good work. Hornets, wasps, bumble-bees, and especially honey-bees, are also frequent visitors to the flowers of plants for the purpose of collecting the pollen and nectar for themselves and for their young. Of all insects, the hive bees and their allies show the most intelligence in their behavior towards plants.

The flowers of our willows and poplars are of two kinds—male and female. The flowers are on distinct trees which are often separated by considerable distances. In some cases the pollen may be transferred by the wind, but in most cases it is undoubtedly carried by the bees which are very active while the flowers are fresh in early spring. The flowers of all our mel-

lons, pumpkins, squashes, cucumbers and gourds are of two kinds on different portions of the same plant. The flowers are each furnished with a long or rather deep corolla in many cases, and the plants often lie flat on the ground where the leaves cover the flowers from the action of the wind. Bees and other insects are the necessary agents in crossing the flowers, and to them we are indebted as one of the links in the chain which affords all our gourd-like fruits. In nature there are many other examples of plants in which the two kinds of flowers are separate, as in oak, chestnut, beech, hazel, walnut, hickory, and many more. But how is it with most of our flowers which are perfect, *i. e.*, those having both stamens and pistils? I should have mentioned that notwithstanding the stamens and pistils are near each other on trees of the chestnut, and the pistils are evidently abundantly dusted with pollen, yet no fruit sets unless two trees are somewhere near each other, that the pollen of one tree may get upon the pistils of the other. In such cases the flowers of the two trees fertilize each other. The same is said to be true with one stalk of corn in a distant field. I intend to try this more fully the coming season, and in a similar manner test many other plants singly, to see if they will produce seed, and whether the quantity and quality are good. Most of our cultivated strawberries have perfect flowers, and may be self-fertilized, at least to a great extent; but the Hovey, green prolific, and some others, have poor or abortive stamens. That they may be fruitful, it is the practice to mix the plants with the Wilson or some other plants bearing perfect flowers. The bees carry the pollen and take the honey.

But how is it with the majority of perfect flowers which have good stamens and good pistils in the same flower? In many of these the pollen is applied to the stigma by insects, and such flowers are rendered more fruitful by these insects than they would be if the flowers were left to themselves. This has been proven by experiment to be the case in many instances, though some flowers are no more likely to seed with the help of insects than without. Very many of our perfect flowers present or ripen the anthers a day or so before the stamens are ready. Such are the lobelias, campanulas—most all the compositæ which includes about one-ninth of all the flowering plants of this part of the country. The last order includes the sunflower, aster, golden-rod, dandelion, etc. Flowers of spilobrium or willow, herb, and clerodendron, thrust the stamens out straight when ripe, while the miniature stigma is curled back and unopened. On the following day, after the pollen is gone, the stigma straightens out and opens. In the case of clerodendron, the stamens curl back when the style straightens. The stigmas are the brides too late for the marriage of nearest relatives, for the pollen or bridegrooms have been carried off by the insect priests, and may be wedded to others not related or not very nearly related. All plants producing the ripe anthers before the stigmas are *protandrous*. Many others are *protogenous*. They present or ripen the stigmas before the anthers shed pollen. Of such we have the rib-grass or *plantago*, forget-me-not, scropularia.

[Full explanations are useless without illustrations. The Professor showed many of these by figures on the blackboard and on charts.—ED.]

We may almost say that flowers which are *protandrous* or *protogenous* are the rule and not the exception. Honey bees are the most prominent, but not generally the only insects which transfer the pollen. In the primrose of our greenhouses, Houstonia and partridge-berry and others, all the styles of the flowers on one plant, and those propagated from this by cuttings are of a certain length. They are long on some plants and short on others. On plants with long styles showing the stigma at the throat of the corolla, the stamens are inserted on the corolla below, near, or towards the base of the flower, while flowers with short styles have stamens at the throat of the corolla. Some experiments show that the plants are most productive of good seeds when stigmas of the long styles are fertilized by anthers occupying a similar position on flowers of other plants. And so of the short stigmas. The above plants are often called *dimorphous lytherum solicaria*, loose strips, and others perhaps are *timorphous, i. e.*, there are stamens of three different lengths, and styles—of three different lengths, long, medium and short. If a flower has a medium style it has long and short stamens; if it has a short style, it has medium and long stamens. What does this mean? Why, that bees (I have seen them at work thus) carry the pollen to the styles of different lengths by different parts of their bodies which have touched the anthers on stamens of a corresponding length which were on other flowers of other plants.

There is an endless number of special contrivances differing in plan and details in each flower or genus of flowers. Those interested are referred to Gray's "How Plants Behave," for details and illustrations of kalmia, milkweeds, orchids, iris, etc. Prof. Riley observed a small moth especially adapted to fertilizing a yucca. She laid an egg and then sipped honey, and so repeated the operation. The plant reared her young insects. She took the honey and transferred the pollen enabling the plant to set seeds. Insect and plant were useless each without the other. This is sometimes true of the striped cucumber-beetle. She eats the young plants, and, later, the pollen and honey, but she helps the plants to seed.

The flowers of *martynia*, trumpet creeper, *mimulus catalpa*, bladderwort, and others have broad flat stigmas which curl apart. When touched by a bee's head in passing in, the stigmas close in a few seconds, and cover the surface which is sensitive to pollen. While taking the honey, the bees are dusted with pollen which is just in the right place to be left on the stigma when entering the next flower. In these flowers, self-fertilization is impossible unless in rare and exceptional cases. For particulars see *American Journal of Science* for Oct., 1876, in article on the subject by the author of this lecture. Flowers of Dutchman's-pipe, some arums, and lady's-slippers, entrap and hold as prisoners different kinds of small insects which enter them. They are not prisons like Libby or Andersonville in miniature, for they treat their prisoners well, with good shelter and an abundance of food and drink of the best that nature affords. The flowers of our common flax are absolutely sterile when

close fertilized by the pollen which is ready in abundance, and often falls upon the stigma of the same flower. Bees cause the flowers to get seeds by crossing with the proper pollen. Our crop of flax seed, then, is benefitted in yield, and in some cases entirely dependent on the aid of the little busy bee. Our common garden beans are self-fertilizing to a certain extent, but the crop is more than doubled by the aid of bees.

Most or all plants are better for a cross. This is not always so apparent at first, as it is after several generations of plants raised from self-fertilized flowers. In such cases, a cross adds increased vigor and fruitfulness. Many, very many flowers you see are as plainly intended for cross fertilization as the beak and talons of the eagle are intended for catching, holding and tearing prey. Not honey bees, but little insects nearly akin, produce the galls on oak. The oak kindly receives the egg, swells up a soft succulent house and gives the young worm an abundance of food. An insect lays an egg in the stem of a golden-rod, or in the tip of a young stem of willow. A brush in one case, a cone in the other is produced to nourish the young worm and feed and shelter it to maturity. Whether these insects repay these plants for their kind reception I have not been able to find out. Paid or not paid, they have food enough and to spare for these interesting little creatures. With small bladders, the bladderwort is busy catching microscopic animals, and retaining them till dead, and then slowly transferring the nourishing juices to the rest of the plant. Here is cruelty even among *h*umble plants. The queer common pitcher plant of our swamps is supplied on the inside with spines pointing downwards. This is the case with numerous others on the continent. Some of them prepare a honeyed secretion which grows more abundant until the lid or open mouth of the pitcher is reached. Insects are enticed, lured on, like a tippler in the dram shop, to the open mouth of destruction. Curiously-constructed lids make the mouth dark, and help to keep the insect from escaping. Most of them cannot walk up the inside of the pitcher. They are drowned by the liquid and devoured by the carnivorous plant.

A few insects, among them a moth, is provided with sharp stiff spines on her legs which act like stilts to enable her to walk up and down among the stiff spines in the pitcher. When a boy, we used to make a box trap for squirrels and rats. To deceive them and make them waste their strength, in busily gnawing where it would not injure the trap, we bored small holes through the sides, and nailed over a piece of tin with a hole through it to let in the light. In the pitcher plant of the Southern swamps are thin translucent spots towards which the insects are attracted instead of the open mouth above which is shaded by the overshowing lid. This is one of nature's cunning traps. The *martynia* plant and others catch and suck to death with their sticky glands innumerable small insects. The venus fly trap of Carolina, everyone knows about, and very likely they have heard of the several kinds of sun-dews which catch little flies with their glands.

Honey is secreted in different parts, or by different organs of the flower. Sepals, petals, stamens, pistils, and disk, each in different flowers is found to secrete nectar. By this I mean that one kind of flower secretes honey with its petals, another kind by sepals and so on. Petals attract bees. Saunders, of Canada, cut off the petals of raspberries and by so doing made it difficult or impossible for the bees to find the honey. Individual bees have been observed to behave differently about flowers, in some respects, from a majority of bees. Some are excentric. They have their own peculiarities. Nageli put artificial flowers to branches, and used essential oil on some, and on others he used no oil. The odor attracted them to the flowers containing it. Aristotle, 2,000 years ago saw that hive bees worked continously on flowers of the same species. They even do so when the flowers are not all colored alike, as in some plants in our flower gardens. By this means they economize time. They get the hang of it. They learn how better to make more rapid motions, and to make every motion count. The same as is true of people who become expert in certain parts of any trade after much practice in often repeating the same operation. In some cases, large numbers of honey bees soon learn to glean after bumble bees, where the latter have made holes into the nectar. I have seen orioles pinching the tube of the Missouri currant or yellow currant, to get the little honey from each flower. This left a small hole which the bees were not slow to find, and frequently use as long as the flower remained fresh.

We have thus seen some of the diverse contrivances by which plants are made to secure cross fertilization. The list might be almost indefinitely extended, and yet find something different in nearly all of them. Flowers shut up, go to sleep, bend over in all manner of ways to prevent themselves from wind and weather, to retain the essential parts in a fresh condition until the time when the proper insects are likely to be about. If they are intended for the visits of moths, they open when the moths are likely to fly, and do not waste their sweetness in daylight. If, like the dandelion, they are dependent to any degree upon bees and other day insects, there is no need of their remaining wide awake all night. They had better close up as they do, and keep for the best part of several days. So you see, the honey is placed in the flowers as wages to pay the bees for serving the plants. The colors and odors are advertisements to call the attention of insects to the rich supplies of food in store for them. It may be said that the honey is there for the bees, but *primarily* it is there for the good of the plant, *secondarily* for the good of the insect. As has been said: "The flowers surpass in an incomparable degree, the contrivances and adaptations which the most fertile imagination of the most imaginative man could suggest with unlimited time at his disposal." You who like the honey bee and are so familiar with its habits and worth, will think no less of it on account of my showing its value to plants.

Had good old Dr. Watts lived in our day, and become familiar with those parts of science, he would very likely have written the familiar stanza in this way:

> How doth the little busy bee,
> Improve each shining hour,
> By carrying pollen day by day
> To fertilize each flower.

W. J. BEAL.

Agricultural College, Mich.

For the American Bee Journal.

That Joint in the Leg of a Bee.

DEAR EDITOR:—That peculiar joint in the leg of the bee has so worked itself into my brain, that it must be disposed of. It has been like a half-learned song which one can neither sing nor get out of mind. Thinking that perhaps others among the many lovers of bees might be interested and pleased, I send a cut which you may use if you choose.

The artist has not made a very good foot, but the joint is quite correct. As the foot of the bee is moved toward the one on the opposite side of the body, the joint would close, holding tightly anything which might be placed between *b* and *c*. By taking the head off a live bee, and putting the leg under a microscope, before life is extinct, the muscles may be seen to contract and relax, thus showing perfectly the working of the joint and little grasping apparatus connected with it.

On the inside of the first joint of the second leg there is also a thorn-like projection, which has the appearance of being intended to aid in holding anything being carried by the bee. Both this and the little spur fitting over the circular opening in the forward leg, seem to be of a horny substance—like the framework of the wing—and with a high magnifying power may be seen some beautiful fluting, inside the circular opening.

Is it not by means of these that they hold so strongly to each other when clustered for comb-building, or in swarming? Does it not show, how much that we have always wondered at might be easily accomplished? I have tried, when they were carrying out dead bees, to see just how they were held, but the little things were too quick.

I can find no description in our bee publications, of anything of the kind, except the pollen basket on the posterior leg. If but a mite is added to what is already known of our little workers, I shall be more than content. M.

Medina, O., April 16, 1877.

[M. is invited to continue her investigations and report in the JOURNAL. We think she has done much better than if she had "learned" her "song," and kept it all to herself. We are glad that our lady friends are so earnest in their investigations. Several communications from them appear in this number, and more are waiting for our next issue.—ED.]

For the American Bee Journal.

A Letter from Tennessee.

Mr. W. J. Andrews sends us the following letter with a request to publish it:

Chattenooga, Tenn., Feb. 28, 1877.

Most of the bee-keepers here are amateurs. I know of no real apiarist in this section, but nearly every farmer has a few colonies in common box-hives or gums. There is occasionally an American hive among them, but they know very little about the management of bees in movable combs. They trust to luck and are superstitious in regard to selling bees. The get a little honey for home use, but very little goes to market, and that is in a very bad (mussy) condition. The natives will not invest one cent in movable combs or glass boxes. If they are people of any means, they are above bee-keeping, or let the negroes attend to the bees.

I believe Upper Sequaschie Valley is a splendid place for bee-culture as a business. The forage is splendid, especially lireodendron trees and black locust. The only trouble is to get to market.

Last year I made three closed-end frame Quinby hives; frames 1½x12x18; each hive with six frames; removable sides and ends; with honey-board and 6 boxes, 4½x6x6, glass sides. The next thing was to get bees. So I sent one hive out in the country to get a swarm put into it. The party informed me that he put a very large swarm into it about June 15. He promised to send it to me just as soon as it got cold enough to move them. He delayed so long that about Feb. 15th I went after them. I found that he had left the ventilator open at the bottom, and one glass box was broken, letting a draft of cold air through the hive all winter, killing fully one-half the bees and compelling the others to occupy the other half of the hive. They were also starving. I smoked them a little, and in half an hour afterwards closed the hive and put it in my wagon. I brought them home and fed them at once, and they are now working very industriously every warm day. They appear to be hybrids, as they have yellow spots on each hip. The party having had an Italian queen in his yard.

Now I will describe the apiary. There were about 25 stands—of all kinds, 2 American, 4 with glass fronts and slides to cover glass, others with glass in top, with a drawer; the rest box hives. The American hives were the only movable combs in the lot. They had all been sold the day before at public sale, the lot brought from 50c. to $2.50 each (3 stands at $2.50). They were in a very bad condition and were starved and neglected. Chickens roosted on them every night. Hogs rooted them over frequently. The glass fronts were all open and the sun shining on the combs. Several were smashed and the combs exposed to the air. They informed me that my swarm was the only one that issued in 1876! Also that they sold over $400 worth of honey in one year.

I will let you know in the future how I succeed. I intend to divide my colony and make 3 of it this summer, even if I have to feed. S. C. DODGE.

For the American Bee Journal.

Western Illinois B. K. Society.

Met at Monmouth, Warren Co., Ill., on Tuesday, April 10th, 1877. President, Wm. M. Kellogg; Secretary, Hardin Haines; Treasurer, T. G. McGaw; Vice-Presidents, Jas. A Simpson and Dr. W. H. Derr; Corresponding Sec'y, Hardin Haines.

After reading the minutes, the Sec'y read the report of the committee on constitution,—which was adopted as were also the by-laws.

The following became active members: T. G. McGaw, Monmouth; Mr. and Mrs. Levi Hollingsworth, Monmouth; A. T. Jarvis, Oquawka; Wm. M. Kellogg, Oneida; Hardin Haines, Vermont; Judge John Porter, Monmouth; G. C. Axtell, Roseville; A. E. Cole, Roseville; Dr. N. H. Derr, Ruthsburg, Ill.; E. C. Crane, Burlington, Iowa, and several others.

The following was reported by the committee on questions for debate:

1. Artificial vs. natural swarming.
2. Queen rearing.
3. Best honey resources.

4. Italian vs. black bees.
5. Does extracting pay?
6. Best mode to secure the most amount of honey.

SWARMING.—It was considered best to make artificial swarms by building up from nucleus stocks, etc. One objection was, the bees sometimes built too much drone comb.

QUEEN REARING.—H. Haines and others thought it best to rear queens in full colonies, by making a frame to contain from 12 to 16 queen cages; putting in queen cells after hatching. It is only necessary then to introduce them into swarms, etc.

HONEY PLANTS.—Mr. Simpson—White clover, buckwheat, basswood, golden-rod, and bergamott are useful and good for honey. French and alsike clover was decided to be a failure.

ITALIAN BEES.—Italian bees [make] more honey than blacks.

There was a difference of opinion in regard to extracting.

On the last question, several decided that the best way to get the most honey was to have none but Italian bees, and small brood nest; for box honey, give plenty of room, etc.

A report from Wm. J. Andrews was expected, but was forgotten.

A fine essay from Rev. A. Salisbury, on Wintering Bees, was then read. The meeting adjourned to meet at Oquauka, on Oct. 2 and 3, 1877.

HARDIN HAINES, Sec.,
WM. KELLOGG, Pres.

For the American Bee Journal.

Foreign Notes.

GLEANED BY FRANK BENTON.

It is estimated that there are 90,000 to 100,000 hives of bees in Sweden.

Schwarmeinbringungsgeraethe are the affairs that the Germans use to catch swarms. It must be that they never lose any; for wouldn't the mere utterance of this musical word suddenly arrest the most determined fugitive swarm? Suppose some of our American bee-keepers who allow natural swarming, try it this season? Just murmur the word in tenderest accents and note its effect on the circling swarm.

FORMING NEW COLONIES.

A French apiarist, M. Cayette, says in *L'Apiculteur:* "I believe it is difficult to determine long beforehand exactly the best time for forming new colonies if one wishes at the same time to secure the largest and best yield of honey. Good apiarists in our locality have natural swarms during 2, 3, and 4 weeks. The best are not always those that issued first. If the yield of honey only becomes abundant in the second or third week, the swarms that issue during this favorable time are the heaviest. The first swarms must devote themselves to the rearing of brood, and are thus occupied during the harvest; the second swarms, on the other hand, having little or no brood, but with a strong population which can be sent into the field, are in the best condition to lay up ample stores. If the bee-keeper were satisfied that the loss of harvest sustained through swarms issuing or made at inopportune times, is made up by the excellent stocks which these swarms make, he would have no cause for complaint, but there is great reason to doubt this.

"My efforts are now directed towards obtaining strong colonies in the spring, in order to make my swarms, at will, as nearly as possible at the exact time which appears to me the most favorable for obtaining the maximum yield of honey. It is necessary to know when this time arrives or else be content with a smaller return."

DEAD BEES IN THE COMBS.

"No one can clear dead bees from combs more quickly or skillfully than mice. If combs filled with dead bees are set for 2 or 3 days in a still place so that mice can get at both sides, they will be found completely cleaned out. This work, which would be very tedious and tiresome for the bee-keeper, and which he could scarcely perform without serious injury to the combs, is very neatly done by the mice; and they only knaw a cell here and there—where the body of a bee does not come out readily, or where they find a little pollen which they nibble."—*T. Sliwka, in der Schlesische Imker.*

The apiculturists of France seem to be very much interested in having a good apiarian display at the next Exposition, which is to be held in Paris in 1878. After stating that colonies of bees could be exhibited, one of the editors of *Le Rucher* (Bordeaux) remarks: "We are certain that the apiculturists of Paris will do themselves the honor of exhibiting their colonies, and will carry high the flag of Progress, which could not be confided to better hands."

POINTS FOR BEGINNERS.

1. Procure only healthy and populous colonies, even though they cost more than unhealthy or weak ones.
2. In general, buy in the spring, after the colonies have been successfully wintered, and get some well-informed apiarist to assist you in making selections, or at least purchase from some bee-culturist with whom you are acquainted.
3. Clean thoroughly the hives in which you place swarms.
4. Allow no empty combs which you wish to use in hives to lie about in the open air, in the bee-house, or any place where moths can get to them; for such combs become genuine brood-nests for wax-moths, the larvæ of which destroy the combs and fill the hives with their webs, so that, if precaution is not taken the existence of the stock is endangered.—*Bienenvater aus Boehmen.*

THE BEE.—That within so small a body should be contained apparatus for conveying the "virtuous sweets," which it collects into one kind of nourishment for itself, another for the common brood, a third for the royal, glue for its carpentry, poison for its enemies, honey for its master, within a probosis almost as long as the body itself, microscopic in its several parts, telescopic in its action, with a sting so infinitely sharp that, were it magnified by the same glass which makes a needle's point seem a quarter of an inch, it would yet itself be invisible, and this too, a hollow tube—that all these varied operations and contrivances should be enclosed within half an inch of length and two grains of matter, while, in the same "small room," the "large heart" of at least thirty distinct insects is contained, is surely food for vast thought.—*My Scrap Book.*

American Bee Journal.

TERMS OF SUBSCRIPTION.

Single subscriber, one year,..... $2.00
Two subscribers, sent at the same time... 3.50
Three " " " " " ... 5.00
Six " " " " " ... 9.00

All higher clubs at the same rate.

RATES FOR ADVERTISING.

1 month, per line, ...20 cents.
2 " " " each insertion ,...15 "
3 " " " " " ....12 "
6 " " " " " ....10 "

One inch in Length of Column makes Twelve Lines.

Special Notices, and pages next to reading matter, one-third more than the above rates. Last page of cover, double rates.

No advertisement received for less than $1.

Cash in advance for all transient advertisements. Bills of regular advertisers payable quarterly. We adhere strictly to our printed rates.

Address all communications and remittances to THOMAS G. NEWMAN,
184 Clark St., CHICAGO, Ill.

Write names and addresses plain—giving County and State.

Additions can be made to clubs at any time, at the same club rate.

When changing post-office address, mention the *old* address as well as the new one.

Specimen copies, canvassing outfit, Posters, and Illustrated Price List sent free upon application.

We send the JOURNAL until an order for discontinuance is received at this office, and arrearages are all paid.

We will give Hill's work on "Chicken Cholera" (price 50 cents), to any one desiring it, as a premium for two subscribers.

☞ When you have a leisure hour or evening, why not drop in on a neighboring family and see if you cannot get a subscriber for THE AMERICAN BEE JOURNAL?

Remittances to be sent at our risk must be by Post-office Order, Registered Letter, Draft or Express (charges prepaid). Make Post-office Orders and Drafts payable to Thomas G. Newman.

☞ For the convenience of bee-keepers, we have made arrangements to supply, at the lowest market prices, Imported or tested Italian Queens, full colonies, Langstroth or other hives, Extractors of all the makes, and anything required about the apiary.

☞ The only *safe* way to send money by mail is to get the letter registered, or procure a money order or draft. We cannot be responsible for money lost, unless these precautions are taken. Then it is at our risk, and if lost we will make it good to the sender, but not otherwise.

☞ Attention is called to the advertisement of ROPP'S COMMERCIAL CALCULATOR. It is in all respects what is claimed for it, and is a very valuable work.

Secure a Choice Queen.

We now renew our offer to send a choice tested Italian queen as a premium to any one will send us four subscribers to THE AMERICAN BEE JOURNAL with $8.00. This premium, giving a good queen for four subscribers, will pay any one for taking some trouble to extend the circulation of the JOURNAL. Premium queens will in every case be tested.

Rev. D. C. Millett, of Holmesburg, Pa., has received a diploma and medal for the "Deborah Bee Hive," for the following reasons:

As an economical hive in sections, with movable combs and facilities for inspection. It is easily made, is inexpensive, and well adapted by the protection it affords for northern climates.

JONH COLEMAN, *Judge*,
FRANCIS A. WALKER, *Chief of Bureau*,
A. T. GOSHORN, *Director General*,
J. R. HAWLEY, *President*.

A full description of this hive was prepared for this issue but is crowded out. It will appear in our next.

BINGHAM SMOKER.—I have just received my Smoker, ordered last winter. Isn't it a gem? Tell A. I. Root that it is not as much like the Quinby as the Quinby is like an old Dzierzon Smoker that a German has near Kalamazoo. If Mr. Bingham sells this smoker at the standard price of $1.50 or $1.60 by mail, which he tells me he will, he is surely a great benefactor to bee keepers. *Somebody* owes me an "improved" smoker, as the one from Mr. Root did not last four weeks.

Bees about here are dead, dead, dead—say three-fourths, on an average. The Italians are away ahead.

It is no more than fair to say that the 25 stocks of Italians which I purchased of Mr. Oatman, of Dundee, Ill., last May, are in prime order, except two or three that I left queenless in the fall. I went hunting ducks and snipe, you see. JAMES HEDDON.
Dowagiac, Mich., April 17, 1877.

Honey Markets.

CHICAGO.—Choice white comb honey, 15@18c. Extracted, choice white, 8@9c.

CINCINNATI.—Quotations by C. F. Muth. Comb honey, in small boxes, 12½@20c. Extracted, 1 lb. jars, in shipping order, per doz., $3; per gross, $30.00. 2 lb. jars, per doz., $6.00; per gross, $60.00.

ST. LOUIS.—Quotations by G. W. Smith. Comb, 18@20c. Extracted, 8@10c. Strained, 8@9c.

SAN FRANCISCO.—Quotations by Stearns & Smith. White, in boxes and frames, 10@15c. Strained honey in good demand at 9@10c.; comb, 11@12½c.; beeswax, 25@26c. Extra fine grades of honey are firmer. Markets well supplied with low grades.